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PLANT APPRAISALS—THEIR TREATMENT IN THE ACCOUNTS

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During the past few years there has been a considerable amount of writing and discussion in the accounting and engineering fields on the subject of the valuation of assets, and especially has the valuation of fixed plant assets come in for much analysis and study. The increasing interest in this problem has been doubtless due, in no small measure, to the attention directed toward it by the income tax regulations and by the marked upward swing of prices from the prewar to the postwar level—a fact which has been of considerable importance and annoyance in numerous public utility valuations incident to the regulation of their rates. However, it may be said without fear of serious contradiction that, as a practical matter, the accountant in the past has not given sufficient consideration to this important problem.

The great diversity and complexity of modern industrial plants, together with the wide fluctuations in prices, have made the valuing of such properties, on any basis other than cost, largely a matter of specialized engineering service—a subject which is completely beyond present consideration. Aside from its engineering aspects the problem of appraisals is of a two-fold character. It is partly a question of managerial policy and partly of accounting method. While a brief summary will be presented of the arguments for and against the advisability of recognizing replacement values, the major purpose of this paper is to set forth the various methods by which the facts of such a policy may be expressed in the accounts and operating statements, assuming that the policy has been decided upon.

SHOULD THE ACCOUNTS SHOW COSTS OR VALUES?

At the present time it is far from a closed question whether accounting should show costs or whether the function of the accounts

is to record values.* Orthodox accounting theory has in the past adhered fairly consistently to cost.† Furthermore, it is a settled rule of the Treasury Department that appreciated values may not be used as a basis for depreciation for tax purposes except in so far as such appreciation occurred prior to March 1, 1913.

The proponents of the cost theory hold that it is the function of the accountant to record facts and that what an asset will cost at the time of its replacement is a matter of speculation; that any appreciation in value now will mean little a few years hence and therefore should not be recognized in the accounts. The contention is further made that the recognition of appreciated values in the accounts is not conservative and paves the way for inflation and misrepresentation in the financial statements. Notwithstanding this position, one should not confuse conservatism with downright understatement when passing judgment as to which procedure is the more advisable.

It is true that much may be said in favor of preserving actual costs in the accounts, if for no other reason than for income tax purposes and as a record of historical investment. However, such accounting does not in all cases give the management information that is often desirable. Therefore, let us briefly examine some of the more significant reasons for the adoption of the policy of recognizing replacement values in the accounts, at least upon special occasions.

1. *Maintenance and repair policy.* If replacement costs have increased greatly it may be to the advantage of the management to revise its maintenance and repair policy with a view to extending the service life of the present equipment. It is evident that in order to make an accurate analysis of such a problem it is necessary that systematic records of current replacement values be maintained.

2. *Ratio of profits to investment in fixed assets.* There is in any business a normal relationship between the investment in fixed assets and the net return that may reasonably be expected from

*Paton and Stevenson, "Principles of Accounting," Chap. XX; The American Appraisal Co., "Accounting for Value as well as Original Cost," pp. 3-66.

†In this connection it may be stated that often cost, as shown by the accounts, is more of an approximation than an actual cost. As an example, replacements are often charged to the depreciation reserve instead of closing the cost of the retired unit to the reserve and capitalizing the cost of the new unit.

their utilization. Such comparisons may be misinterpreted, however, over a period of years if the fixed assets were acquired during a period of low prices, for example, while the revenue resulting from the sale of the product manufactured is earned in a later period of high prices. It is evident that such comparisons would tend to have an upward bias in this case which can be removed only by recognizing in the calculation the current value of the investment. If the replacement costs are not recognized, the interpretation of the inflated ratio may lead to the erroneous conclusion that the business possesses a goodwill value which is not present.

3. *The dividend policy and the recovery of the physical plant.* It is not only the duty of the management to keep intact the original investment in dollars by making an allowance for depreciation based on original cost, but it must also recognize that successful and continuous operation requires the recovery of the physical plant which must be replaced in the future. In other words, the real capital invested measured in terms of the prevailing price level must be maintained.

4. *Financing.* In financing by bonds and other credit instruments it is imperative that the current appraisal values of the fixed assets be recognized; because not only would the borrower be placed at a disadvantage if this were not done, but also a rather awkward situation would be presented in the balance sheet if the bond issue were for a sum greater than the cost of the property pledged as security.

5. *Insurance.* Similarly, current valuations are of prime importance in the placing of, and in the speedy and equitable collection of insurance policies.

6. *Determination of the effective costs of production.* There are many accountants who admit the advisability of recognizing in the balance sheet fixed asset values based on a conservative appraisal of their present reproduction costs, provided that the change in value is material, definite, and reasonably permanent in character. However, it is not generally held (and it is at this point that most of the controversy is centered), that appreciation should find any place in the expense and revenue classification through charges for depreciation based upon costs of reproduction; because, it is argued, profits can be retained in the business in anticipation of higher costs of replacements without charging depreciation based

on appreciated values to operation. Moreover, it is maintained that from the standpoint of cost accounting a charge to operation for depreciation based on cost of reproduction would result in a higher cost of manufacture not necessarily to be recovered in a higher selling price for the product. In other words, the market price that any one concern can receive for its product in a competitive regime is dependent upon factors which bear little or no relation to that concern's cost of production. While there is much to be said in support of such a position, one cannot deny that in a highly competitive industry a large proportion of the losses is due to the failure to keep dependable costs. A manufacturer who is ignorant of his *effective costs* of production is a dangerous competitor only until he has lost a considerable share of his capital and has learned that an accurately determined burden rate is a powerful check against price cutting. Besides, it is only by taking account of replacement values that the management is able to proceed intelligently in making decisions, from a long-run point of view, as to which products should be concentrated upon and which methods and processes should be followed.

Appraisals of plant may, in general, be placed in two broad categories, retroactive and current. In retroactive appraisals the costs of reproduction as of some specific date other than the present are used in the valuation of the property. Current appraisals apply present-day prices of construction to the property items. Each of these types of appraisals has a distinct accounting significance, and hence it will be necessary to consider them as separate problems.

RETROACTIVE APPRAISALS*

The majority of the retroactive appraisals have been made for income tax purposes; and although most of them were made some ten years ago when the basic date first took effect,† it may be well to follow the procedure which is necessary to recognize a retroactive appraisal in the accounts, especially since some of the public utility valuations in recent years have been of this type.

Suppose that the X Company exhibits the following property account on December 31, 1917:

*Paton, "Accounting," pp. 350-352.

†March 1, 1913, value was introduced by Congress for the first time in the 1916 Revenue Act.

Plant and Equipment (original cost)	\$75,000.00
Less: Reserve for Depreciation	10,500.00
Net book value	<u>\$64,500.00</u>

The property was acquired on January 1, 1911. Depreciation has been charged at the rate of two per cent per annum. There have been no abandonments or additions to the property.

An appraisal is made at this time and it is found that the sound net value as of March 1, 1913, was \$74,000.00. The following calculations are necessary to furnish a basis for reflecting this value in the accounting records:

Appraisal value as of 3/1/13	\$74,000.00
Cost of Plant and Equipment	\$75,000.00
Less: Reserve for Depreciation, 3/1/13	3,250.00
(2% on \$75,000 for 2 yrs. 2 mos.)	

Net book value as of 3/1/13	<u>71,750.00</u>
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Excess of appraised value over book value	\$ 2,250.00
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Assuming that the life of the plant, as estimated, continues unchanged, there remains 47 years, 10 months of service. Hence, the depreciation rate is changed from 2% to 2.0905%.

Depreciation reserve on cost at 12/31/17	\$10,500.00
Depreciation on \$74,000 from 3/1/13-12/31/17	7,443.18
(\$74,000 x .020905 x 4 yrs. 10 mos.)	

Amount by which reserve must be diminished	<u>\$ 3,056.82</u>
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Excess of appraised value over book value	\$ 2,250.00
(See above)	

Depreciation on appraised value,	
3/1/13-12/31/17	\$ 7,443.18
Depreciation on cost from 3/1/13-12/31/17	<u>7,250.00</u>

193.18

Credit to Surplus	<u>\$ 2,056.82</u>
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The following entries, then, are necessary to record the above data:

Building—Appraised Value	\$74,000.00
Building—Reserve for Depreciation	3,056.82
Building Cost	\$75,000.00
Surplus	<u>2,056.82</u>

The above entries close the old building account and charge a new account with the appraised value, and reduce the balance in the reserve account to \$7,443.18. The credit to surplus measures the difference between the increase in the value of the property and the amount by which depreciation on the appraisal value exceeds the depreciation on cost actually charged from March 1, 1913, to December 31, 1917.

CURRENT APPRAISALS*—REPLACEMENT COST GREATER THAN COST

Retroactive appraisals are, in general, of little value for managerial purposes except in so far as they affect the calculations for the income tax returns. If the management desires to recognize value in the accounts, it is not the value of the plant as of some date in the past that is significant as a rule, but rather it is a value based upon current prices of construction that is important. Accordingly, special attention must be devoted to the current appraisal. Further, in recent years the trend of construction costs has been largely upward, and hence the current appraisal based on replacement costs in excess of original costs is of primary significance from a practical standpoint.

For an example let us assume that the B Company exhibits the following fixed asset account on December 31, 1920:

Fixed assets (original cost)	\$500,000
Allowance for depreciation (10% for 4 yrs.)	200,000
Net book value	<u>\$300,000</u>

An appraisal is made at this time showing the following:†

Cost of reproduction	\$700,000
Depreciation suffered on cost of replacement	280,000
(10% for 4 yrs.)	
Sound value	<u>\$420,000</u>

*See The American Appraisal Co., "Accounting for Value as well as Original Cost," pp. 67-111.

†The book value of the fixed assets may be less than the appraised sound value for a number of reasons, chief of which are the following:

1. An excessive allowance for depreciation may have been charged during prior years.
2. An increase in the price level of construction may have taken place since the assets were acquired.
3. Visible depreciation based on the percentage of efficiency as observed by appraisal engineers is usually less than the straight-line depreciation.

There are two methods by which the appraisal value may be recorded in the accounts. By the first method the operating records are not charged with depreciation based on the current values; in other words, it is purely a balance sheet record. In the second, operations are charged with the depreciation based on the appraisal value.

The following entries outline the accounting procedure necessary at the outset under the first method:

Fixed Assets—Appreciation	\$200,000
Allowance for Depreciation	\$ 80,000
Reserve for Appreciation in Value	120,000

Assuming that the service life of the plant remains unchanged a depreciation rate of ten per cent per annum is continued for the remaining six years. The following entry is made each year to record the depreciation:

Depreciation (cost)	\$50,000
Reserve for Appreciation in Value	20,000
Allowance for Depreciation	\$70,000

It will be noticed that although the fixed assets are carried on the books at an appraised value greater than cost, operation is charged only with depreciation based on cost. The reserve for appreciation in value is charged each year with one-sixth of \$120,000, and thus at the end of six years the reserve will be extinguished. The allowance for depreciation is credited with ten per cent of the cost of replacement: at the end of six years it will stand at \$700,000.

The advocates of this method maintain that the real purpose of charging depreciation to operation is to amortize the actual cost of the fixed asset and that the operating statement should show directly or indirectly only actual outlays. They further contend that the recognition of appraisal values in the balance sheet serves the purpose of giving the desired credit information and that it reminds the management that in view of higher replacement costs a conservative dividend policy must be followed. Without going into a discussion of the subject of what constitutes effective cost, it should seem fair to say that if one were to compare the investment of a business on the basis of current values of the fixed assets with the profits based on depreciation of the original cost, wholly misleading conclusions would probably be drawn.

An illustration involving the procedure necessary to reflect current values in the operating cost accounts as well as in the balance sheet will now be given.*

Using the data given on page 308, the following entries are necessary to record the adjusted values on the books:

Fixed Assets	\$200,000
Capital Adjustment—	
Revaluation of Fixed Assets	\$120,000
Depreciation Reserve Adjustment—	
Appraisal Value	80,000

Explanation of entries:

Fixed Assets (Dr.)

The original cost of the fixed assets was \$500,000. The cost of reproduction new is \$700,000. The gross amount of the appreciation is debited to this account to reflect the increase in value. The integrity of the original cost figures may be maintained by making an entry to a special asset account, such as Fixed Assets—Gross Appreciation, instead of directly to the fixed asset account.

Capital Adjustment—Revaluation of Fixed Assets (Cr.)

This account reflects the net appreciation in the value of the fixed assets which has not been realized from the sale of the property or from not having as yet been charged to operating costs. The credit of \$120,000 is the difference between depreciated original cost (\$300,000) and the sound value at date (\$420,000). The theory of this account is that it represents the adjustment, measured in terms of the prevailing price level, of the capital invested in fixed assets.

Depreciation Reserve Adjustment—Appraisal Value (Cr.)

This account reflects the amount of accumulated depreciation based on the gross appreciation (10% of \$200,000 for 4 years). Another possible explanation of this account is that it represents the difference between the accrued depreciation on original cost and the accrued depreciation on cost of reproduction new. In this particular case it shows the difference between \$200,000 and \$280,000, or \$80,000.

Assuming that the service life of the fixed assets remains unchanged and, hence, that the rate of depreciation is continued at ten per cent, the following entries are required to record the annual charge for depreciation:

*In all of the examples which follow only the second method will be considered, chiefly because this method represents a thoroughgoing recognition of values in the accounts and also because the first method presents no difficulties in procedure.

Depreciation Expense	\$70,000
Depreciation Reserve—Cost	\$50,000
Depreciation Reserve Adjustment—	
Appraisal Value	20,000
Capital Adjustment—	
Revaluation of Fixed Assets	20,000
Reserve to Provide for Higher	
Costs of Replacement	20,000

Explanation of entries:*Depreciation Expense (Dr.)*

The charge of \$70,000 is 10% of the cost of reproduction new (\$70,000), and is the amount of depreciation charged to operating costs. This charge of \$70,000 may also be analyzed in the following manner. The sound value of the property is \$420,000 and the property has an estimated remaining useful life of six years; therefore, during each of the remaining years, one-sixth of the sound value, or \$70,000, is charged to depreciation expense.

Depreciation Reserve—Cost (Cr.)

This account represents the accumulation of depreciation computed on the basis of original cost. The credit of \$50,000 is 10% of the original cost (\$500,000), and is the amount of depreciation allowable as an income tax deduction.

Depreciation Reserve Adjustment—Appraisal Value (Cr.)

The credit of \$20,000 to this account is the depreciation based on the gross appreciation in value (10% of \$200,000). It also measures the difference between the depreciation on original cost (\$50,000) and the depreciation on cost of reproduction new (\$70,000).

Capital Adjustment—Revaluation of Assets (Dr.)

During the year \$20,000 of the gross appreciation has been charged to operating costs and recovered through sales (presumably). Therefore, we diminish the account by debiting it with \$20,000.

Reserve to Provide for Higher Costs of Replacements (Cr.)

This is a surplus account which measures the amount of appreciation that has been recovered through a charge to operating costs. The amount of this recovered appreciation should not be made available for dividends, but rather it should be kept intact to provide for the replacement of the property in the future at higher replacement costs. This is very important since the distinction between this account and the Capital Adjustment account is largely nominal.

The procedure at this point might be varied somewhat as follows: Instead of crediting this account directly with the amount of recoverable appreciation, a profit and loss account, non-operating income might be credited. The profit and loss account would then in turn be debited and the Reserve to Provide for Higher Costs of Replacements would be credited with the amount

of recovered appreciation. This method emphasizes more roundly that the reserve is actually appropriated for a definite purpose. Such a procedure has also the advantage of showing a profit and loss statement whose net profit from all sources is the same as if the appraised values were not recognized, but does show in the internal classification of that statement, net profit from operations, the true situation regarding effective costs of production.

After these adjustments have been made the property account stands as follows:

Fixed Assets (cost of reproduction new)	\$700,000
Less:	
Depreciation Reserve—Cost	\$250,000
Depreciation Reserve Adjustment—	
Appraisal Value	100,000
	<hr/>
Total depreciation on cost of reproduction new	350,000
	<hr/>
Sound value	\$350,000
Less: Capital Adjustment—	
Revaluation of Assets	100,000
	<hr/>
Depreciated original cost	\$250,000

The following balance sheet exhibits the nature and use, in that statement, of the various special accounts that have been used in the foregoing illustrations:

<i>Assets</i>	
Current Assets	\$700,000
Fixed Assets:	
Machinery and Equipment (cost) ...	\$500,000
Appreciation in Value per	
Appraisal Report of —	
Appraisal Co.	200,000
	<hr/>
	\$700,000
Less:	
Depreciation Reserve—Cost	\$250,000
Depreciation Reserve Adjust-	
ment—Appraisal Value	100,000
	<hr/>
	350,000
	<hr/>
Sound Value	\$350,000
	<hr/>
Total Assets	\$1,050,000

<i>Liabilities and Capital</i>	
Liabilities	\$250,000
Capital:	
Common Stock	\$600,000
Earned Surplus	80,000
Reserve to Provide for Higher	
Costs of Replacement	20,000
	<hr/> \$700,000
Capital Adjustment—	
Revaluation of Assets	100,000
	<hr/> 800,000
Total Liabilities and Capital	<hr/> \$1,050,000

It will be remembered that one of the reasons given for recognizing reproduction values in the accounts and the subsequent charging of the appreciation in value to expense was to reserve profits in the business to provide for the increase in cost that will have to be incurred when the asset is replaced. In this connection it should be noted that it is not strictly possible in all cases to recover the entire amount of the gross appreciation.

For example, in the above illustration, assuming replacement costs continue the same for the remaining six years of service life of the equipment, the following depreciation charges would have been made at the end of that period:

Depreciation based on cost was charged to expense, for the first four years of the life of the property	\$200,000
Depreciation based on cost of reproduction will have been charged to expense at the end of six years	420,000
Total depreciation charged to expense	<hr/> \$620,000

Thus it is evident that the charge to expense for depreciation lacks \$80,000 of equaling the cost of reproduction new (\$700,000). This difference is accounted for by the fact that the appreciation in value was not recognized until after four years of the service life of the equipment had expired (4/10 of \$200,000 or \$80,000). To the extent that the adjustment for increased values is retroactive this discrepancy is bound to appear.

Let us now suppose that the management has contracted for continuous appraisal service and that on December 31, 1921, the following appraisal report is received:

There have been no abandonments or additions during the year and the estimated service life remains unchanged.

Cost of reproduction of fixed assets	\$750,000
Depreciation on cost of reproduction at 10% per annum for 5 years	375,000

Sound value as of December 31, 1921	\$750,000
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The journal entries necessary to record this change are as follows:

Fixed Assets	\$50,000*
Capital Adjustment—	
Revaluation of Fixed Assets	\$25,000
Depreciation Reserve Adjustment—	
Appraisal Value	25,000

Explanation of entries:

Fixed Assets (Dr.)

The original appraisal stated the value of the assets at \$700,000. The appraisal at this time shows the value of the assets to be \$750,000. The difference of \$50,000 is charged to the Fixed Assets account.

Capital Adjustment—Revaluation of Fixed Assets (Cr.)

This account represents the difference between appreciated original cost and the sound value at date or \$125,000. The balance in this account prior to the last appraisal was \$100,000; therefore, we must make a credit entry of \$25,000 to raise the account to the required balance.

Depreciation Reserve Adjustment—Appraisal Value (Cr.)

This account represents the difference between the accrued depreciation on original cost and the accrued depreciation on cost of reproduction new, or \$125,000. Up to the time of the last appraisal the account had a balance of \$100,000, therefore we must increase this figure by \$25,000.

Thus far we have assumed that the service life of the asset remains unchanged. Let us now suppose that when the original appraisal was made the following facts were presented:

Fixed Assets (original cost)	\$500,000
Depreciation Reserve—Cost	200,000
(10% per annum for 4 years)	

Net book value	\$300,000
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*It will be noted that during the year the value of the assets has increased \$50,000. Often a proposal is made to offset depreciation by appreciation and therefore support a policy of recognizing no depreciation. Not only would such accounting defeat the entire purpose of the thesis set forth here, but it shows a failure to appreciate the significance of the depreciation charge. Depreciation is a real cost of production and if it is not recognized true costs cannot be shown.

It was found further that the original estimate of ten per cent per annum for depreciation had been too high and that instead of apparently six years of useful life remaining it is estimated that sixteen years remain. In other words, instead of the property value being two-fifths expired it is but one-fifth expired. Hence, the rate must be changed from ten per cent to five per cent per annum.

Cost of reproduction (new)	\$700,000
Depreciation suffered on cost of reproduction to date	140,000
(1/5 of \$700,000)	
Sound value per appraisal report	\$560,000

The following entries are required to record the above data:

Fixed Assets	\$200,000
Depreciation Reserve—Cost	100,000
Depreciation Reserve Adjustment—	
Appraisal Value	\$ 40,000
Surplus	100,000
Capital Adjustment—	
Revaluation of Assets	160,000
Surplus	40,000
Reserve to Provide for Higher Costs	
of Replacements	40,000

Explanation of entries:

Fixed Assets (Dr.)

The debit to this account is made to record the amount of gross appreciation (\$200,000) as established by the appraisal.

Depreciation Reserve—Cost (Dr.)

The debit of \$100,000 to this account measures the excess depreciation that has been charged to operation during the past four years. It will be remembered that up to the time of the appraisal two-fifths of the cost had been written off. The appraisal established the fact that but one-fifth of the value had expired; therefore, the adjustment is made to reduce the reserve to the true amount of depreciation suffered on cost.

Depreciation Reserve Adjustment—Appraisal Value (Cr.)

This account represents the amount of depreciation accrued on gross appreciation or \$40,000 (5% of \$200,000 for 4 years).

Surplus (Cr.)

Since operations in the past have been charged with \$100,000 too much depreciation, past earnings have been understated by a like amount; therefore, an adjustment is necessary in the surplus account.

Capital Adjustment—Revaluation of Assets (Cr.)

The entry of \$160,000 is the difference between depreciated original cost adjusted for excess depreciation taken (\$400,000) and the sound value at date (\$560,000).

Surplus (Dr.)

The effect of crediting the \$100,000 to surplus would show that such an amount was available for dividends. However, if it is desired to keep sufficient funds in the business for the replacement of the assets at a cost of \$700,000 we must transfer \$40,000 from the general surplus account to the Reserve to Provide for Higher Costs of Replacement.

This last fact may be explained as follows:

Depreciation charged to operation prior to the appraisal	\$200,000
Depreciation that will be charged to operation during remaining 16 years	560,000
(5% of \$700,000 for 16 years)	
Total depreciation charged to operation during life of the assets	\$760,000
Excess depreciation credited to surplus	100,000
Amount that would be reserved in the business if the \$100,000 were paid out as dividends	\$660,000
Amount that should be reserved in business	700,000
Deficiency	\$ 40,000

Annually the following entries would be made:

Depreciation Expense	\$35,000
Depreciation Reserve—Cost	\$25,000
Depreciation Reserve Adjustment—Appraisal Value	10,000
Capital Adjustment—Revaluation of Assets	10,000
Reserve to Provide for Higher Costs of Replacement	10,000

Explanation of entries:

Depreciation Expense (Dr.)

The charge of \$35,000 is 5% of the cost of reproduction new (\$700,000).

Depreciation Reserve Cost (Cr.)

The credit of \$25,000 is 5% of the original cost (\$500,000).

Depreciation Reserve Adjustment—Appraisal Value (Cr.)

The credit of \$10,000 is 5% of the amount of gross appreciation (\$200,000).

It is doubtful to what extent the income tax regulations should influence our accounting set-ups. However, it should be noted in this case that prior to the appraisal the amount of \$200,000 of depreciation had been charged to expense which was or should have been deducted in calculating the income tax liability; and subsequently during the remaining sixteen years there will be charged to cost of manufacture \$400,000 depreciation based on original cost (5 per cent of \$500,000 for sixteen years). In other words, \$600,000 depreciation will have been taken on an asset costing but \$500,000. Obviously the Treasury Department will not allow the excess \$100,000 to be deducted in the income tax returns. The question now arises, are we to follow depreciation allowable as income tax deductions only in memoranda accounts, or should we endeavor to bring such data into our general accounting records?

If only memoranda accounts are used the following calculation would have to be made in order to comply with the requirements of Regulations 69:*

Original cost	\$500,000
Depreciation taken on cost prior to appraisal	200,000
<hr/>	
Depreciation yet to be taken on cost during the next 15 years	\$300,000
<hr/>	
The annual deductible depreciation (1/16 of \$300,000)	\$ 18,750

It is only in those cases where the estimated service life is changed that the general procedures as outlined above do not give the desired tax information.

The following set-up could be used if it is here the wish of the management to have the books conform with the income tax regulations:

Fixed Assets	\$200,000
Depreciation Reserve Adjustment—Cost	100,000
Depreciation Reserve Adjustment— Appraisal Value	\$ 40,000
Capital Adjustment—Revaluation of Assets	160,000
Surplus	100,000

*"If it develops that the useful life of the property will be longer or shorter than the useful life as originally estimated under all the known facts, the portion of the cost or other basis of the property not already provided for through depreciation allowances should be spread over the remaining useful life of the property as estimated in the light of the subsequent facts. Regulations 69, Art. 165. (Italics are author's.)"

Surplus	40,000
Reserve to Provide for Higher Costs of Replacement	40,000

Explanation of entries:

The procedure outlined here is the same as that on page 315 with the exception that instead of debiting Depreciation Reserve—Cost with \$100,000, the debit is made to a special account, Depreciation Reserve Adjustment—Cost.

Annually the following entries are made:

Depreciation Expense	\$35,000
Depreciation Reserve—Cost	\$18,750
Depreciation Reserve Adjustment—Cost	6,250
Depreciation Reserve Adjustment— Appraisal Value	10,000
Capital Adjustment—Revaluation of Assets	10,000
Reserve to Provide for Higher Costs of Replacement	10,000

Explanation of entries:

All of the entries are self-explanatory with the exception of:

Depreciation Reserve—Cost (Cr.)

This is the amount of depreciation that is deductible for income tax purposes.

Depreciation Reserve Adjustment—Cost (Cr.)

This account is credited each year with 1/16 of the amount of excess depreciation that had been taken prior to the appraisal, (1/16 of \$100,000 or \$6,250). At the end of 16 years the debit of \$100,000 will have been written off.

CURRENT APPRAISALS—REPLACEMENT COST LESS THAN COST

If it is maintained that current values should be recognized in the accounts during the periods of rising prices consistency demands a corresponding treatment when prices are falling. It may be well to admit freely that at this point the arguments in favor of recognizing values as well as costs are relatively weak. To insist that the depreciation charges involved in the operation of an asset can be less than the actual cost of that asset may appear to be an anomaly. Furthermore, if the excess of cost over replacement value were distributed as dividends the courts would rule no doubt that it was a distribution of capital. Of course, it would

not be necessary to distribute this margin as dividends, and no doubt in the majority of cases, in view of future uncertainties, it would be the better policy not to do so.

However, there still seems to be a basis for the view, expressed before, that the depreciation charge based on replacement values has important implications from the standpoint of operating cost statistics. It has been generally accepted that under *certain conditions* in order to improve the load factor of a plant any new business that will take care of the assignable material and labor costs plus part of the overhead is profitable. In other words, such business, in itself unprofitable, may lead to greater net profits. Why, then, is it unreasonable to accept orders, under similar circumstances, whose costs include a charge for depreciation based on a replacement value lower than cost—business that is profitable enough to maintain physical capital? The recognition of values is but a further step toward more complete costs—a fact which minimizes the possibility of the acceptance of unprofitable orders or the refusal of profitable ones.

One illustration will be given to make clear the procedure necessary where cost is greater than cost of reproduction. Suppose that prior to an appraisal the property account of the C Company stood as follows:

Fixed Assets (original cost)	\$600,000
Depreciation Reserve (10% per annum for 4 yrs.)	240,000
Net book value	<u>\$360,000</u>

The appraisal stated the following:

Fixed Assets (reproduction cost)	\$500,000
Depreciation (10% per annum for 4 yrs.)	200,000
Sound value	<u>\$300,000</u>

The estimated service life remains unchanged.

The following entries are required to record the above data:

Depreciation Reserve Adjustment—	
Appraisal Value	\$ 40,000
Capital Adjustment—Revaluation of Assets	60,000
Fixed Assets	<u>\$100,000</u>

Explanation of entries:

Depreciation Reserve Adjustment—Appraisal Value (Dr.)

This account, as in the preceding illustrations, measures the difference be-

tween depreciation on original cost (\$240,000) and depreciation on cost of reproduction (\$200,000), or a debit of \$40,000.

Capital Adjustment—Revaluation of Assets (Dr.)

This account measures the difference between depreciated original cost (\$360,000) and sound value (\$300,000), or a debit of \$60,000.

Annually the following entry would be made:

Depreciation Expense	\$50,000	
Depreciation Reserve Adjustment—		
Appraisal Value	10,000	
Depreciation Reserve—Cost		\$60,000
Capital Impairment—Revaluation of Assets	10,000	
Capital Adjustment—Revaluation of Assets ..		10,000

Explanation of entries:

Depreciation Expense (Dr.)

The charge of \$50,000 is 10% of the cost of replacement (\$500,000).

Depreciation Reserve Adjustment—Appraisal Value (Dr.)

The charge to this account is the difference between the depreciation on actual cost and depreciation on cost of replacement.

Depreciation Reserve—Cost (Cr.)

The credit of \$60,000 is 10% of the original cost and is the amount of depreciation allowable as an income tax deduction.

Capital Impairment—Revaluation of Assets (Dr.)

This account may be interpreted as a liquidation of capital provided the decline in the value of the assets is due to a general change in the value of money. However, if the decline in the value of the assets is focused upon this particular business while nothing else drops in value, it would not be unreasonable to hold that the decline in value is a loss. The distinction between this account and the Capital Adjustment account is but a nominal one. In general this account may be looked upon as a contra to the surplus account.

Capital Adjustment—Revaluation of Assets (Cr.)

The credit to this account represents the amount of the unrealized shrinkage in value of the assets that has been realized during the period.

No attempt will be made to carry the above illustration through all of the different situations that were considered under the previous sub-heading, because it is believed that sufficient analysis has already been given to make their applications at this point clear.

ACCOUNTING FOR THE ABANDONMENTS OF PROPERTY

There is one further problem of accounting method that should be considered, namely, the adjustments that should be made when

property, whose replacement value has been recognized in the accounts, is abandoned.

Let us assume that on July 1, 1920, the D Company found it necessary to abandon the following property:

Cost of reproduction	\$70,000
Depreciation suffered to date	31,500
(10% of \$70,000 for 4½ yrs.)	
Sound value	<u>\$38,500</u>
Original cost	\$50,000
Depreciation suffered to date	22,500
(10% of \$50,000 for 4½ yrs.)	
Depreciated original cost	<u>\$27,500</u>

The following entries are necessary to record the above facts:

Depreciation Reserve—Cost	\$22,500
Depreciation Reserve Adjustment—	
Appraisal Value	9,000
Capital Adjustment—Revaluation of Assets	11,000
Profit and Loss	27,500
Fixed Assets	<u>\$70,000</u>

Explanation of entries:

Depreciation Reserve—Cost (Dr.)

This account is debited with \$22,500, the amount of accumulated depreciation on cost that is applicable to the abandoned property.

Depreciation Reserve Adjustment—Appraisal Value (Dr.)

Since this account is the difference between depreciation on original cost and depreciation on cost of reproduction it is necessary to clear the account of the amount applicable to the retired units, or \$9,000.

Capital Adjustment—Revaluation of Assets (Dr.)

This account represents the appreciation that has not been charged to operation or the difference between depreciated original cost and sound value. In this case it is necessary to debit the account with \$11,000.

Profit and Loss (Dr.)

The actual loss from the abandoning of this property is the undepreciated original cost, or \$27,500.

Fixed Assets (Cr.)

This account is credited with the value of the properties abandoned.

SOME MISCELLANEOUS PROBLEMS INVOLVED

In all of the examples that have been presented the procedure for reflecting values has been outlined for the control accounts only, i. e., the accounting has been in terms of totals rather than of detail. It is evident that in order to allocate correctly depreciation on reproduction cost in the cost accounting records it is necessary to enter such facts in the subsidiary plant accounts. To accomplish this it is necessary to add a sufficient number of columns to the plant ledger page to facilitate the collection and accumulation of the data that are reflected in the control accounts.

Another important matter is the adjustment necessary to eliminate the amount of depreciation on appreciated values charged to operation which still remains in the goods-in-process and finished goods inventories. The elimination of this charge can be accomplished only under the most simple conditions—viz., when there is but one product manufactured and when all overhead is charged to manufacturing cost. When such is the case the cost of goods sold, divided by the sum of the opening inventory and the cost of the goods manufactured during the period, gives the percentage of the goods available during the period that have been disposed of. By applying this percentage to the total amount of depreciation on appreciation that has been charged to operation in producing the total amount of goods available for sale, the amount of appreciation that has been recovered or earned through the sale of the product can be determined; the balance remaining represents the amount of unearned appreciation in the cost of the inventories.

But under ordinary manufacturing conditions we are unable to make the above assumptions. Production in a plant is centered not on one product but on many, each having varying amounts of depreciation in its cost. Furthermore, the plant may not be operating at normal capacity and hence an adjustment must be made for unearned burden. To eliminate exactly the amount of appreciation in the inventories under such conditions, would require a detailed analysis of the sales of each type of good to ascertain the amount of the charge in each. However, a fairly accurate adjustment may be effected if two assumptions are made: first, that the closing inventory includes only goods manufactured during the period; second, that the different types of goods bear the same proportionate relationship in the closing inventory as in the total

of the goods manufactured. The importance of these assumptions will become evident as we proceed.

The first step in the elimination is the adjustment for unearned burden, since the element of appreciation in the manufacturing costs only arises through earned burden. This is accomplished by, first, ascertaining the percentage of depreciation based on appreciation normally chargeable to cost, to the total burden. Next, this percentage is applied to the earned burden, as shown by the cost records, which gives the amount of depreciation on appreciation charged to manufacturing cost. Then the depreciation on appreciation charged to manufacturing costs is divided by the cost of goods manufactured, giving the percentage of depreciation on appreciation in the cost of goods manufactured. Finally, this percentage applied to the inventory shows approximately the amount of unearned appreciation in the inventory, which is carried forward to the next period as the balance of the Reserve for Unearned Appreciation in Inventories.

An illustration will make the procedure clear. Given the following data:

Depreciation on appreciation (normal)	\$ 20,000
Total burden charge (normal)	100,000
Earned burden this period	90,000
Cost of goods manufactured	200,000
Final inventory	75,000

Depreciation on appreciation charged to manufacturing cost:

$$\frac{20,000}{100,000} = 20\%$$

$$20\% \text{ of } \$90,000 = \$18,000$$

The percentage of depreciation on appreciation in the cost of goods manufactured:

$$\frac{18,000}{200,000} = 9\%$$

By applying the nine per cent to the final inventory of \$75,000 we find the amount of depreciation on appreciation in the cost of the inventory, or \$6,750, which is the balance that is to remain in the Reserve for Unearned Appreciation in Inventories. This reserve is a contra to the merchandise inventory account.

In those cases where the Reserve for Unearned Appreciation in Inventory is set up, a slight variation in the procedure, as given in

the above illustrations, is necessary. Instead of charging the account, Capital Adjustment—Revaluation of Assets and crediting Reserve to Provide for Higher Costs of Replacements with the amount of appreciation charged to expense the following entry should be made:*

Capital Adjustment—Revaluation of Assets	\$20,000
Reserve for Unearned Appreciation	
in Inventories	\$20,000

To reduce the balance in the reserve to \$6,750, the amount of unearned appreciation in the cost of the final inventory, the following entry is made:

Reserve for Unearned Appreciation	
in Inventories	\$13,250
Reserve to Provide for Higher Cost	
of Replacements	\$13,250

The credit to the Reserve to Provide for Higher Cost of Replacements represents the amount of appreciation that has been recovered through the sale of merchandise.

A final matter is the question of what is the proper attitude for the accountant to take toward the appraisal figures which are to be used as the basis of the adjustments made in the book values of the assets. Should he accept the figures of an independent appraisal wholeheartedly, or is it his duty to admit the data in the records only after he has satisfied himself as to their validity by careful review and analysis?

Admitting the limitations in the training of the accountant and recognizing the extremely technical aspects of an engineering appraisal, it is advisable, nevertheless, for the accountant to take a "Missourian" attitude toward the appraisal report for several reasons. In the first place the report should be checked both for its inclusiveness and exclusiveness. For example, the report may not include all classes of property which are listed as fixed assets on the books. On the other hand, the appraisal may include at replacements costs certain machines, obsolete ones, which, although they may be capable of relatively efficient service, are of little value from the standpoint of producing the products now marketed. Again, the plant, highly specialized, may be of such a size that the management can never expect to utilize the whole of it. Should

*See page 311.

replacement values for such unused capacity be recognized in the accounts? And so on. Many illustrations could be given where review by the accountant is necessary; situations and conditions exist that the appraisal company may not be aware of.

Second, what meaning should be attached to the term, cost of reproduction? Is it the cost of replacing the existing physical plant, which is the usual method followed, or is it the cost of producing the identical service?* In other words, if there has been an advance in the arts is not the management, from the viewpoint of making provisions for future replacements, more interested in the costs of the newer types of equipment than in the costs of replacing the existing units? For example, a plant now in use could perhaps be replaced with a more efficient substitute—a plant that would be capable not only of as great a capacity as the present one, but that could be reconstructed with a smaller capital expenditure in spite of the fact that construction prices in general had risen. It is not intended to urge that in such a case one could rigidly insist that the book value of the present plant be reduced in view of the existence of a more efficient substitute. Nevertheless, this one problem emphasizes the point that an asset does have more than one value at any particular time, and, furthermore, that such facts are pertinent from the point of view of sound managerial policy.

Finally, there is the question of the validity of the procedure followed by the appraisal companies in arriving at the sound value of an asset, and the relationship this procedure bears to the annual rate of depreciation as established by the appraisal report.* Briefly, the appraisal company follows the principle of physical condition or efficiency in the valuing of depreciable assets. The appraiser by measurement and inspection finds that the property has lost to date a certain percentage of its utility. This percentage applied to cost or cost of reproduction new gives, according to the appraiser, the amount of depreciation suffered to date. This accrued depreciation is subtracted from the basis on which it was calculated to find the present sound value of the asset. In other words, the appraiser transposes relative efficiency into terms of values—clearly a confusion of the ideas of physical condition and

*This question has been debated widely in the field of regulated public utilities, although upon somewhat different grounds than we are concerned with at this time.

*See Paton and Stevenson, "Principles of Accounting," pp. 506-9.

accrued depreciation. The accountant defines depreciation as the expiration of value of assets; and he is interested in distributing annually this decline in value, on some rational basis, during the service life of the equipment. If depreciation were calculated annually on the basis of physical efficiency we would have a large depreciation charge the first year; during the remaining years, up to the time of abandonment, the annual charge would be relatively small; while at the date of retirement of the unit a large depreciation charge would be necessary. Obviously such a method does not meet the needs of the accountant.

Notwithstanding the objections raised, the appraiser does perform a valuable service when he estimates the current costs of reproduction.

In concluding this discussion of the accounting for appraisals we must recognize that the subject is still in a formative stage; that the methods for reflecting values in the accounts may not be, from the practical point of view, all that could be desired. In fact, it may even be asked whether we should endeavor to recognize reproduction values in the formal accounting records. Perhaps something in the nature of systematic statistical records completely outside of the scheme of debits and credits would be more serviceable. In that case, various schedules could be formulated to be read in conjunction with the formal accounting statements based on cost. Nevertheless, it seems fair to say that in the future, if serious study is devoted to the problem by accountants, a workable system will be devised whereby the management will be given data of more practical significance than any that are now made available on the basis of cost records only.

ACCOUNTING FOR BARTER IN REAL ESTATE

By H. F. TAGGART, University of Michigan

Transactions variously described as trades, exchanges, or "deals" are very common in the real estate business. The difficulties which such transactions present for the accountant are due to a number of circumstances. In the first place, these dealings follow no rules. Each one is a law unto itself. They do not readily fit into any system of bookkeeping, no matter what preparations have been made to care for every possible contingency. Very often they involve immediately neither cash receipts nor disbursements. Sometimes they are not even evidenced by a formal agreement between the parties, although they always should be. Even when the agreement exists, it is often ignored in some details. Thus it is sometimes very difficult to find out what actually has happened. A common occurrence is the assumption of liabilities the precise amount of which is determinable only in the future, so that the original entry for the transaction must be tentative, either estimating the amount of the liability in order to obtain the cost of the property exchanged and hence the profit or loss on the transaction, or waiting until such time as the liability is determined before attempting a reckoning of the final results. One of the chief difficulties is that the agreements cannot ordinarily be taken at face value for accounting purposes, even if to the letter they are carried out. The values mentioned in the agreements for the properties involved are quite generally overstated. This is done deliberately, usually with the notion that both sides will benefit by having values appear greater than they really are. It is notoriously true that the value put on a piece of property for trading purposes is higher than the price that would readily be accepted in a cash deal. The accountant is under the necessity of examining these values with a critical eye and must generally use a different set of values for accounting purposes.

The exchange partakes of the nature both of a sale and of a purchase. It is both the acquisition and the disposition of property. Where to place the emphasis is a question. Sometimes one element is predominant, and sometimes another. If the transaction is

treated as a sale, profit or loss will result. If it is looked upon as a purchase, neither profit nor loss is involved. If in any case an exchange is looked upon as an even trade, the emphasis is thereby placed upon the purchase aspect of the transaction. Whether a given transaction contains an element of profit or loss, or does not, is a matter of the true values of the properties exchanged. The determination of these values is by no means a simple task. Recent sales of the same or similar properties and rental values may be used if they are known. A disinterested appraisal, keeping in mind the purposes for which the property is acquired, may be the best evidence. In the lack of other criteria, the honest opinion of those responsible for the deal must be relied on. Their judgment is apt to err, if at all, in the direction of conservatism, and in spite of any belief that the accounts ought to show the truth and nothing but the truth, a mistake which understates values and profits does not disturb the accountant's conscience to the extent that an error in the other direction is apt to do. It must be kept in mind that the value of any piece of real estate, in the absence of bona fide offers to purchase at a certain price, is, within very wide limits, a matter of opinion. The accountant is not an appraiser, and so long as he is satisfied that the values given him are in good faith and within the bounds of reason, he may freely use them.

No specific principles with regard to the accounting for barter transactions can be laid down without the use of examples. The following cases are taken from actual practice and are intended to be representative of the various cases which may arise, although the endless variety of this class of transactions make it obviously impossible to treat of every possible contingency.

Case I

The X Land Company entered into an agreement by which a house and lot were acquired from A, who was given in exchange eighteen lots in a subdivision owned by the Company. The agreement stated the price of the lots at \$1,000 apiece and of the house and lot at \$25,000. Each lot was taken over by A subject to an underlying mortgage of \$300. Instead of assuming these mortgages, he gave the Company mortgages of the same amount which were to be paid when the Company's own obligations fell due. A's property was subject to a mortgage of \$12,400. A commission of fifteen per cent

of the stated price of the lots was given by the Company who was responsible for the deal.

This is a case of pure barter. That is, no cash whatever passes from one party to the other either at the time of the transaction or subsequently. The mortgages which A gave to the Company are only apparently an exception to the above statement. They were actually only the means by which A assumed the Company's liability on the lots. Without using value terms the transaction may be described as the exchange of the Company's equity in the lots for A's equity in the house and lot. Whether a profit was made or a loss sustained by the Company depends upon the value of what was received as compared with what was given up.

The lots cost the Company \$400 apiece. A composite entry for the entire transaction which accepts the agreed values at their face is as follows:

House and Lot	\$25,000
Mortgages Receivable	5,400
Cost of Subdivision	\$ 7,200
Mortgage Payable	12,400
Cash (for commission)	2,700
Income	8,100

The gain from the transaction, when booked in this manner, is evidently due to the fact that the house and lot are placed on the books at \$25,000. A lower value would reduce the gain, a higher one would increase it. Whether this income of \$8,100 is correct, then, depends upon the validity of the \$25,000 valuation, all the circumstances of the case being given due weight.

In the case at hand the facts were that the house was new and no previous sales had taken place to establish its value with any certainty. \$25,000 would have been a top price in the retail market for the property. It is just possible that someone wanting the place for dwelling purposes might have paid this amount, if given the benefit of very easy terms. No dealer, however, intending to sell the property and make a profit, would have thought of paying any such price. What a dealer, under such circumstances, would have paid for it, is a matter for speculation. Probably the only way to find out would be to secure bona fide bids from representative dealers. The only evidence of the kind which here existed was the actual cost to the X Land Company in terms of assets surrendered and the liability assumed. This comes to \$16,900,

which is the value of the house and lot with all profit eliminated from the transaction. As a matter of fact, in the present case, there was little evidence that this value was far out of the way. It was decidedly conservative, but not unreasonably so in view of the facts that the Company was a dealer and had acquired the property with a view of making a profit out of it, that the subdivision lots involved were not selling at the list prices established by the Company, and that the house and lot were situated in a new section where the values of surrounding property were not well established. The fact that the Company entered into the deal does not prove that a profit was made thereby, but merely that the management was of the opinion that the Company's position in the market was somewhat improved by the change in the form of property holdings. The fact that a commission was paid to the salesman who was primarily instrumental proves merely that the Company considered the equity in the house and lot as worth at least \$2,700 more than the equity in the lots. The fact that the commission was calculated on the "selling price" of the lots shows only that that was a convenient basis for calculation.

An entry which treats this transaction as an even exchange is as follows:

House and Lot	\$16,900
Mortgages Receivable	5,400
Cost of Subdivision	\$ 7,200
Mortgage Payable	12,400
Cash	2,700

In view of all the circumstances of this case, the above seems to be the proper entry.

It is not safe to draw the conclusion that in every case of pure barter all profit or loss is to be eliminated. The exact determination of such an element is a difficult matter in such cases on account of the difficulty of ascertaining the precise values of the properties, but an assertion that no profit or loss should be recognized would be too sweeping. It must be noted that an ascertainable market value for either of the properties would be sufficient evidence upon which to reckon the final effect of the transaction. No such value could be attached to the lots in the present case, since no ready market existed for them. If, however, lots similarly situated in this or in nearby subdivisions had been selling for, say, \$800, a profit of \$5,400 could readily be calculated and substantiated. It

is a well-known fact that a shrewd trader may not only improve his position in the market in the matter of the saleability of the property which he acquires in his dealings, but may also actually obtain more valuable property through superior foresight and bargaining ability. The accountant is under the necessity of obtaining the best evidence existing as to the values concerned and must proceed with his entries on that basis.

The income tax provisions with regard to such transactions as the above and the cases that follow are of considerable interest. The dealer in real estate gains no benefit from Section 203 (b) (1) of the Revenue Act of 1926 since the property which he exchanges is his stock in trade and is thus excluded from that class of property which can be exchanged without effect on the owner's income tax. That portion of Section 203 (a) which provides that "upon sale or exchange of property the entire amount of the gain or loss shall be recognized" is therefore applicable. For guidance in the calculation of gain or loss Section 202 (c) states that "the amount realized from the sale or other disposition of property shall be the sum of any money received plus the fair market value of the property (other than money) received." The cost of the property exchanged is to be deducted from "the amount realized" to obtain the profit or loss on the transaction. It is evident that in all cases of barter the ascertainment of "fair market value" of the property received is the *sine qua non* of profit determination. Just what "fair market value" is has not been discovered. That is, there is no general rule, applicable in all cases, which will enable anyone to determine, for any specific asset, its fair market value. The circumstances of the given case are always the controlling factors. Regulations 69 have only this, in general, to say on the subject: "The 'fair market value' of a property is that amount which would induce a willing seller to sell and a willing buyer to purchase."* Article 206 contains a detailed discussion of the "fair market value" of mines, a portion of which would be applicable to the real estate situation. "The Commissioner will give due weight to any and all factors and evidence having a bearing on the market value, such as cost, actual sales and transfers of similar properties... rentals... valuation for local or State taxation, partnership accountings, records of litigation in which the value of the property was in question, the amount at which the property may have been in-

ventoried in probate court, and, in the absence of better evidence, disinterested appraisals by approved methods." All of this merely emphasizes the fact, above stated, that the proper value for accounting purposes is, within wide limits, a matter of opinion, and confirms the statement that the accountant must rely on the best evidence available for his purposes.

Case II

The Y Land Company acquired a house and lot from B, who received a small tract of land owned by the Company in exchange. B was buying the house and lot on contract from C, a balance of \$5,000 on this contract being assumed by the Company. In addition to his equity in the house, B gave the Company a note for \$1,600, secured by a first mortgage on the tract. The agreement which was drawn up stated \$9,400 as the price of the house and \$6,000 as the price of the tract.

The cost of the tract was \$1,000. An entry which takes the agreement at its face value is as follows:

House and Lot	\$9,400
Mortgage Receivable	1,600
Cost of Tract	\$1,000
Contract Payable	5,000
Income	5,000

In this case one of the indices of the proper value for the house and lot mentioned in the income tax regulations was present. The contract, his interest in which B had assigned to the Company, showed that B had recently purchased the property for some \$6,000. The mortgage, which is also subject to valuation for income tax purposes, may be considered as being worth its face value, since the discount which would have been suffered upon its sale would have been slight. That some gain was made on the transaction is evidenced by the fact that the face of the mortgage was greater than the cost of the tract. The manager of the Company estimated that the tract could have been sold outright for about \$2,500. Using this as the actual sale price of the tract, the entry arrived at is as follows:

House and Lot	\$5,900
Mortgage Receivable	1,600
Cost of Tract	\$1,000
Contract Payable	5,000
Income	1,500

This case contains a marked sale element which makes it obvious that a degree of profit must be recognized. The only point of difficulty is the determination of the proper amount of income, and the solution given above seems adequate.

Case III

D sold a house and lot to E at a stated price of \$8,000 on contract. E was to pay ten per cent down by giving D \$50 in cash and his equity in a lot on which there was a contract liability of \$250. D paid an agent \$280 commission for his part in the deal.

The house and lot had cost D \$6,000. Entries which use the values stated in the agreement are as follows:

Contract Receivable—E	\$8,000
House and Lot	\$6,000
Cash (for commission)	280
Income	1,720
To record sale of house and lot to E.	
Lot	\$1,000
Cash	50
Contract Payable	\$ 250
Contract Receivable—E	800

To record the receipt of the down payment from E.

These entries assume that the value of the lot which D received was \$1,000. The true market value of this lot, however, was almost immediately established by its sale at a net price of \$650. It is evident, therefore, that the actual gain on the sale of the house and lot did not exceed \$1,370, or the amount shown above minus the difference between the stated value and the true value of the lot. The second entry above should therefore be revised as follows:

Lot	\$ 650
Discount (deduction from income)	350
Cash	50
Contract Payable	\$ 250
Contract Receivable—E	800

Better still, the original entry for the sale should take into consideration the fact that part of the down payment is not going to be worth its nominal value. This would result in a revaluation of the contract receivable and the following entry:

Contract Receivable—E	\$7,650
House and Lot	\$6,000
Cash	280
Income	1,370

The entry at the receipt of the lot would then be as follows:

Lot	\$ 650	
Cash	50	
Contract Payable		\$ 250
Contract Receivable—E		450

These entries come much closer to showing the actual facts than the first entries given above, although they disregard the face of the contract.

This case is an example of a real sale where an incidental part of the consideration is in the form of property. The barter element has to be reduced to the terms of the actual values involved. It happened in this case that all the transactions relating to the sale of the house and the receipt and sale of the lot occurred in the same fiscal year, so that the precise method of making the entries did not matter. If the lot had been taken on the books at \$1,000, the loss when it was sold would have offset the book gain on the sale of the house and lot. Such a situation is not always or usually the case, however. The valuation of the property received is highly important from the standpoint of determining the real effect of the exchange upon proprietorship.

Case IV

S and T, equal partners in the real estate business, desired to procure a garage building owned by R. R had bought the property on contract, and a liability of \$16,000 was still outstanding upon it. S and T owned a small tract of land for which they had paid \$750, and two lots which had cost \$1,600. An agreement was drawn up by which R was to receive \$4,000 in cash, the tract, and the two lots. The agreed price for the garage was \$28,000. S and T were to assume the contract liability, the tract was to count for \$6,000 of the purchase price, and the lots for \$2,000.

If the deal were to be taken at face value, the entry would be the following:

Garage and Site	\$28,000	
Cost of Tract		\$ 750
Cost of Lots		1,600
Contract Payable		16,000
Cash		4,000
Gain from Sale of Tract		5,250
Gain from Sale of Lots		400

This transaction leans as far toward being an ordinary purchase as Case III does toward being a sale. If the transaction is treated as a purchase on the books all profit will be eliminated, and the property received will be placed upon the books at cost. The justification for this procedure is to be found, if at all, in the actual value of the garage, if that can be determined. In this case an examination of the facts shows that R had purchased the property for \$24,000. Extensive remodeling and repairs must be done by S and T, however, this fact serving to reduce the present value. S and T considered, as a matter of fact, that they were getting just what they were paying for in terms of assets given up and liabilities assumed. Their advantage in the deal lay in the concentration of their property into one piece. The \$28,000 figure was in their minds merely a formality. The entry which treats this transaction as a purchase is as follows:

Garage and Site	\$22,350	
Cost of Tract		\$ 750
Cost of Lots		1,600
Contract Payable		16,000
Cash		4,000

Incidentally, the striking disparity discovered by a comparison of the cost and the trading price of the tract and the lots, respectively, is a good example of the uncertain character of real estate values. Both the tract and the lots had been acquired by S and T only a short time before and were favorably situated with respect to a thriving suburban community. The tract had had the advantage of recent publicity with regard to projected industrial development in its vicinity, and hence had a trading value out of all proportion to its cost. What the sound, permanent values of these properties were is a question to be settled only by the passage of time.

Case V

The Progress Realty Company sold a house and lot to M for \$7,500. The house was not quite completed, and the agreement called for an additional coat of paint, a garage, a driveway, and sundry other items needed to finish the building. A land contract was drawn up in regular form which called for \$100 at the time of signing, \$400 on completion of the house, and immediately thereafter M was to assume a first mortgage on the property amount-

ing to \$3,500 and give the Company some vacant land which he owned in full settlement of the balance.

The cost of house and lot to the date of the sale was \$6,400. There were two elements of uncertainty in the transaction, however, which made a definite entry at the time of the sale difficult to make. One was the true selling price. This depended on the actual value of the land to be received in partial payment. On the basis of the terms of the agreement, this was assigned a value of \$3,500. Since all values mentioned in trading agreements are open to suspicion, however, this figure could not be used without some investigation as to its validity. The second uncertainty was that of the cost of the improvements which were to be made, upon which would depend the total cost of the house and lot, and which must be determined before the amount which must be compared with the selling price to determine profit or loss was known.

The \$3,500 value for the land to be received was found not to be excessive, contrary to the usual expectation in such affairs. This made it possible to make the following entry for the sale before the final cost of the house was determined:

Contract Receivable—M	\$7,500
Sale of House and Lot	\$7,500

The \$100 receipt from M was then entered.

Cash	\$ 100
Contract Receivable—M	\$ 100

In due time the house was completed. The total additional expenditures were \$1,000, making the cost of the house and lot \$7,400. Now the credit made at the time of sale could be resolved as follows:

Sale of House and Lot	\$7,500
Cost of House and Lot	\$7,400
Income	100

The receipt of the cash and property and the assumption of the mortgage by M were then recorded as follows:

Cash	\$ 400
Land	3,500
Mortgage Payable	3,500
Contract Receivable—M	\$7,400

It happened in this case that the house was completed and its total cost and the final result of the deal were available in the same

fiscal period as that in which the sale was made. This made it possible to make all the entries as above given. If, however, it had been necessary to close the books before the total of the expenditures necessary to complete the house had been ascertained, an estimate of the amount still to be incurred would have been necessary, and the determination of profit or loss could have been made on that basis. If the estimate had been, say, \$950, the credit made at the time of sale would have been analyzed at the end of the period as follows:

Sale of House and Lot	\$7,500
Liability for Completion of House	\$ 950
Cost of House and Lot (to date)	6,400
Income	150

Subsequent expenditures would be charged to the liability account up to its amount and thereafter to surplus, to offset the overstated income of the period of sale.

In this particular case another method is available to postpone the complete analysis of the transaction until all the facts are known. Since, by terms of the contract, payments subsequent to the first \$100 are conditioned upon the completion of the house, a good argument could be made to the effect that no sale has been consummated until the object of the sale is put into the condition contemplated by the agreement, and hence no entry for the sale need be made until that time. Then all the facts are known and no trouble is experienced in putting them into the books. The \$100 would be treated as a sort of option or deposit to insure M's good faith. The entry would be as follows:

Cash	\$ 100
M—Deposit on House and Lot	\$ 100

As expenditures on the house were made they would be charged to the account wherein the cost of the house is kept, and when they were complete the entry for the sale could be made as follows:

Contract Receivable—M	\$7,500
Cost of House and Lot	\$7,400
Income	100

The contract would then be credited with M's deposit as follows:

M—Deposit on House and Lot	\$ 100
Contract Receivable—M	\$ 100

Subsequent entries would be as first given above.

Although the five cases here discussed by no means exhaust the possibilities of variety and difficulty in transactions that involve barter, they are believed to be representative, running, as they do, the gamut from an obvious purchase to an obvious sale. They are intended to emphasize two most important conclusions with regard to such transactions. The first is that each deal must be treated in the accounts on its own merits and in view of its own particular circumstances. No one is precisely like any other, and each has its own special difficulties. The second conclusion, which must serve as the principal guide to the solution of all such problems, is that the actual values involved must be used as the basis for the accounting entries. These values are not always easy to discover, especially in the cases of newly developed property where market values are not firmly established, but the accountant must analyze the evidence which exists and use that which in his judgment best reflects the facts. Especially must he beware of taking the values as stated in the exchange agreements as being valid for his purposes. These are not to be trusted, as is well known to all who have had any experience in such matters.

THE REFINANCING BALANCE SHEET

By DAVID HIMMELBLAU, *Northwestern University*

A condensed balance sheet which reflects all the adjustments arising from and incidental to the proposed financing is often used in the circular issued by the bankers when offering securities for sale.

The adjustments fall into three main groups, viz:

1. New funds obtained from—bonds or notes to be sold; stock to be sold; assets to be liquidated; etc.
2. New funds to be disposed of—to retire funded debt; to retire certain issues of preferred stock; to liquidate short-term debt; for additions to plant; by withdrawal of cash or other assets from the business; etc.
3. Internal readjustments—reclassification of capital stock issues; revaluation of assets; stock dividend; etc.

The cost of the new financing is usually included in deferred charges and the excess of the funds obtained over funds to be expended is included in the cash item.

The procedure involved may be illustrated by a simple hypothetical example. The following shows the position of the XYZ Corporation just before a refinancing:

XYZ CORPORATION

Balance Sheet, December 31, 1927

<i>Assets</i>		<i>Liabilities</i>	
Cash	\$ 1,000	Bank Loans	\$ 70,000
Receivables	15,000	Accounts Payable	40,000
Inventories	45,000	Capital Stock	20,000
Plant less reserve	89,000	Surplus	20,000
	<hr/>		<hr/>
	\$150,000		\$150,000

It is now proposed to:

1. Sell \$75,000 first mortgage bonds at 90.
2. Retire \$60,000 bank loans.
3. Appraise the properties. (The sound value is \$125,000.)

The following journal entries reflect the proposed transaction:

(1)

Deferred Charges (discount on bonds)	\$ 7,500
Cash	67,500
First Mortgage Bonds	\$75,000
Bonds to be sold to Jones & Smith per contract dated	

(2)

Bank Loans	\$60,000
Cash	\$60,000
Bank Loans to be paid.	

(3)

Plant	\$36,000
Capital Surplus	\$36,000
Sound appraised value at Dec. 31, 1927	\$125,000
Depreciated book value at same date is	89,000
Increase	\$ 36,000

Posting the foregoing entries to the work sheet, we have:

X Y Z CORPORATION
Working Papers, December 31, 1927

Debits	Per		Adjustments		Balance Sheet
	Balance Sheet	Debit	Credit	As Adjusted	
Cash	\$ 1,000	(1) \$ 67,500	(2) \$ 60,000		\$ 8,500
Receivables	15,000				15,000
Inventories	45,000				45,000
Plant less reserve	89,000	(3) 36,000			125,000
Deferred Charges		(1) 7,500			7,500
	<u>\$150,000</u>				<u>\$201,000</u>
Credits					
Bank Loans	\$ 70,000	(2) 60,000			\$ 10,000
Accounts Payable	40,000				40,000
First Mortgage Bonds			(1) 75,000		75,000
Capital Stock	20,000				20,000
Surplus	20,000				20,000
Capital Surplus			(3) 36,000		36,000
	<u>\$150,000</u>	<u>\$171,000</u>	<u>\$171,000</u>		<u>\$201,000</u>

Arranging the data in the "as adjusted" column in conventional balance sheet form gives the balance sheet as of December 31, 1927, adjusted to reflect the new financing.

X Y Z CORPORATION
Balance Sheet, December 31, 1927

(Adjusted to reflect proposed sale of \$75,000 First Mortgage Bonds,
proposed retirement of Bank Loans and Appraisal of Plant.)

<i>Assets</i>	<i>Liabilities and Net Worth</i>
Current Assets:	Current Liabilities:
Cash\$ 8,500	Bank Loans\$10,000
Receivables 15,000	Accounts Payable .. 40,000
Inventories 45,000	
	—————\$ 50,000
	First Mortgage Bonds 75,000
Plant (at sound value appraised by Brown & Co., as of December 31, 1927) .. 125,000	Net Worth:
	Capital Stock\$20,000
Deferred Charges 7,500	Capital Surplus 36,000
	Surplus 20,000
	————— 76,000
—————\$201,000	—————\$201,000

Analysis of the foregoing statement shows that the proposed financing is inadequate as the ratio of current assets (\$68,500) to current liabilities (\$50,000) is only 1.37 to 1. The appraisal value of the plant (\$125,000) does not warrant a larger issue of bonds; hence, an improvement in the working capital situation can be effected only through the sale of capital stock.

One or two examples from practice may now be given to emphasize the nature of the balance sheet prepared to exhibit the effect of a proposed refinancing.

THE H. W. GOSSARD CO.
Consolidated Balance Sheet, December 31, 1925

<i>Assets</i>
Current Assets:
Cash\$ 179,990.63
Accounts Receivable, Less Reserves 677,568.39
Inventories 2,069,483.76
Advances for Traveling Expenses 14,757.52
Prepaid Expenses 23,541.90
Total Current Assets\$2,965,342.20
Property:
Land\$ 48,049.81
Buildings, Equipment, Furniture, Automobiles, etc., Less Reserve for Depreciation 574,702.67
Net Property 622,752.48

Other Assets (Including Common Capital Stock of The H. W. Gossard Co. held for sale to employees)	34,763.87
Prepaid Rent Deposited under Lease Agreement	47,955.00
Deferred Charges	122,611.36
Total	\$3,793,425.51

Liabilities

Current Liabilities:	
Notes Payable	\$ 475,000.00
Accounts Payable	140,666.05
Dividend Payable—Common Stock	25,000.00
Accrued Liabilities	114,279.10
Total Current Liabilities	\$ 754,945.15
Contingent Liability—Canadian Trade	
Acceptances Discounted	\$ 45,085.00
Reserve for Dividend on Preferred Stock	8,014.00
Capital Stock and Surplus:	
Preferred Stock—Issued (7,450 Shares of \$100.00 Each)	\$ 745,000.00
Less—Held for Retirement	58,100.00
Outstanding 6,869 Shares	\$ 686,900.00
Common Stock—No par value—Authorized, 125,000 Shares—Outstanding, 75,000 Shares	\$ 798,207.32
Surplus, per accompanying summary	1,545,359.04
	2,343,566.36
Total Capital Stock and Surplus	3,030,466.36
Total	\$3,793,425.51

THE H. W. GOSSARD CO.

Consolidated Balance Sheet, December 31, 1925

(Condition as at that date after application of proceeds from sale of 25,000 shares of common capital stock for \$750,000.00.)

Assets

Current Assets:	
Cash	\$ 454,990.63
Accounts Receivable, Less Reserves	677,568.39
Inventories	2,069,483.76
Advances for Traveling Expenses	14,757.52
Prepaid Expenses	23,541.90
Total Current Assets	\$3,240,342.20

Refinancing Balance Sheet

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Property:

Land	\$ 48,049.81	
Buildings, Equipment, Furniture, Automobiles, etc., Less Reserve for Depreciation	574,702.67	
Net Property		622,752.48
Other Assets (Including Common Capital Stock of The H. W. Gossard Co. held for sale to employees)		34,763.87
Prepaid Rent Deposited under Lease Agreement		47,955.60
Deferred Charges		122,611.36
Total		\$4,068,425.51

Liabilities

Current Liabilities:

Accounts Payable	\$ 140,666.05	
Dividend Payable—Common Stock	25,000.00	
Accrued Liabilities	114,279.10	
Total Current Liabilities		\$ 279,945.15
Contingent Liability—Canadian Trade Acceptances Discounted	\$ 45,085.00	
Reserve for Dividend on Preferred Stock		8,014.00
Capital Stock and Surplus:		
Preferred Stock—Issued (7,450 Shares of \$100.00 Each)	\$ 745,000.00	
Less—Held in Treasury for Retirement	58,100.00	
Outstanding 6,869 Shares		\$ 686,900.00
Common Stock—No par value—Authorized, 125,000 Shares—Outstanding, 100,000 Shares after sale of 25,000 Shares	\$1,500,000.00	
Surplus	1,593,566.36	
		3,093,566.36
Total Capital Stock and Surplus		3,780,466.36
Total		\$4,068,425.51

Comparing the original consolidated balance sheet of the H. W. Gossard Company as of December 31, 1925, and the corresponding statement showing the financial condition as at that date after the application of the proceeds from the sale of 25,000 shares of

common capital stock for \$750,000, it will be noted that the \$750,000 received was disposed of as follows:

1. To liquidate notes payable	\$475,000.00
2. To increase cash	275,000.00
	<hr/>
	\$750,000.00

The resultant changes in the statement are:

1. Increase in cash from \$179,990.63 to \$454,990.63.
2. Reduction in notes payable \$475,000.00.
3. Increase in common stock from \$798,207.32 to \$1,500,000.00.
4. Increase in surplus from \$1,545,359.04 to \$1,593,566.36, representing a transfer of \$48,207.32 from capital stock account.

In the Gossard case the balance sheet reflects the financial condition of existing corporations adjusted to include as of that date certain subsequent transactions arising from the financing. In other cases the balance sheet given relates to a corporation not yet organized. In other words, it reflects a financial condition which would exist if the corporation had been organized and all financing accomplished as of the balance sheet date. Such a balance sheet is more accurately designated as a "pro forma" balance sheet. The statement of the Liquid Carbonic Corporation following is an example:

Pro Forma Balance Sheet of
THE LIQUID CARBONIC CORPORATION
as of June 30, 1926

Giving effect as at that date to the provisions of the agreements for (a) the formation of the new company, (b) the sale of \$4,000,000 First Mortgage Bonds and 100,000 shares Common Stock of no par value, (c) the application of the proceeds thereof to the acquisition of certain assets subject to liabilities of The Liquid Carbonic Company (the predecessor company), and the liquidation in part of bank loans assumed, and (d) the acquisition, by leasehold, of an additional carbonic gas plant for which contract has been signed.

Assets

Current Assets:

Cash in Bank and on hand	\$ 366,278.61
Notes Receivable	3,400,197.12
Accounts Receivable	1,909,451.69
Due from Officers and Employees	30,564.63
Inventories (at book values)	1,939,103.56
	<hr/>
	\$7,645,595.61

Refinancing Balance Sheet

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Investments	32,165.93
Capital Assets:	
(As appraised by The American Appraisal Company at the cost of reproduction new at September 30, 1925, with additions since at cost.)	
Land	\$ 837,126.52
Buildings	\$2,644,829.60
Machinery and Equipment	2,538,258.72
Furniture and Fixtures	181,970.91
Delivery and Transportation	
Equipment	189,973.38
	<hr/>
	\$5,555,030.61
Less Depreciation	1,499,421.18
	<hr/>
	\$4,055,611.43
Drums and Valves (at cost less Depreciation)	975,864.44
	<hr/>
	\$5,031,475.87
	<hr/>
	5,868,602.39
Deferred Charges:	
Prepaid Insurance Premiums, Interest, etc.	51,602.54
Goodwill, Patents, Processes, etc.	1.00
	<hr/>
Total	\$13,597,967.47
	<hr/>
	<i>Liabilities</i>
Current Liabilities:	
Notes Payable	\$1,803,970.44
Accounts Payable	326,891.90
Accrued Salesmen's Commissions	195,931.04
Purchase Money Obligations due within one year	135,000.00
Dividend Payable July 15, 1926	59,990.25
Reserve for Federal Income Taxes	179,619.32
	<hr/>
	\$2,701,402.95
First Mortgage Convertible Sinking Fund 6% Gold Bonds,	
Due August 1, 1941 (this issue)	4,000,000.00
Miscellaneous Reserves:	
For Collection Expenses and future losses	\$ 137,697.93
Bonuses to Officers and Employees	173,150.00
For Contingencies	366,778.08
	<hr/>
	677,626.01
Capital and Initial Surplus:	
Represented by 100,000 Shares of no-par Stock	6,218,938.51
Contingent Liabilities:	
In respect of Customers' Notes discounted	\$ 45,566.52
	<hr/>
Total	\$13,597,967.47

Many different types of adjustments are represented in refinancing balance sheets. Examination of sundry statements issued in 1916 discloses the following specific adjustments:

1. Issuance of bonds. (This is one of the most common adjustments.)
2. Issuance of stock.
3. Sale of property.
4. Sale of securities owned.
5. Liquidating notes payable.
6. Liquidation of current liabilities.
7. Retirement of bonds.
8. Withdrawal of securities owned.
9. Withdrawal of cash.
10. Payment of stockholder's personal account.
11. Advances to affiliated companies.
12. Purchase of plant and inventories.
13. Stock dividend.
14. Elimination of book value of goodwill.
15. Appraisal of goodwill.
16. Appraisal of properties.
17. Readjustment of capitalization.

A matter of importance in constructing and handling these special statements is that of interim changes in conditions. In the Gossard case the sale of the capital stock and incidental adjustments occurred on the date of the balance sheet, but ordinarily there is an interval of several months between the date of the audited balance sheet and the actual date of financing. It is essential that the auditor examine the accounts for these intervening months to ascertain that nothing transpired during that period which affects adversely the company's financial condition, as for instance, a fire loss, loss on inventory liquidation, judgments, etc. It is also important that the statement reflect as nearly as may be the prospective financial condition after the financing is consummated. Current liabilities should not be reduced below their normal level as doing so distorts the *ratio* of current assets to current liabilities even though it does not affect the *amount* of working capital.

In conclusion and summary it may be said that the balance sheet adjusted to reflect financing is a special statement prepared to show what the financial condition would have been had said financing been effected at the date of the balance sheet. It is not the

company's legal balance sheet. The financial condition shown does not appear on any set of books because of the unavoidable lapse of time between the date of the balance sheet and date financing actually occurs. Consequently there should be no adverse change in condition during the intervening period.

The final statement should be brief and clear; it should disclose all material changes incidental to the financing. The transactions should be actually *consummated* or in imminence of consummation and not merely *proposed* unless the latter point is clearly brought out. The new funds should not be so applied as to reduce current liabilities below the normal amount of outstanding indebtedness.

INTERNESHIP IN ACCOUNTING—ITS VALUE AS A TRAINING FOR ADMINISTRATIVE POSITIONS

By M. L. FREDERICK,

Supervisor Business Training, General Electric Company

It is generally recognized that one of the leading factors contributing to the present high level of prosperity which this country is enjoying is the economy from large-scale production. The reduction of overhead and the lowering of unit costs due to the manufacture of commodities in large quantities has brought within reach of the average workman comforts which were sheer luxuries a generation ago. This would scarcely have been possible under the sole-proprietorship and partnership forms of organization, as no small group of investors would have been able to furnish sufficient capital to finance the requisite volume of business. It has been the corporation, under the guidance of farsighted executives, which has contributed so largely to this progress.

This change in the general aspect of business (with the scientific approach to problems of finance, production, and marketing which is now required) has placed business on the plane of a profession; and colleges and universities have recognized this by establishing departments of business administration with curricula designed to train men as leaders in this profession. The nature of the entrance to a business career has also changed with the times, for the young man of today, instead of planning to go into business for himself, aspires to the managership or directorship of some substantial enterprise, where he can wield considerably more influence than as an independent entrepreneur.

The time is therefore at hand for schools of business administration and professors of applied economics courses to point out to their advanced students that the idea of business as a profession must be carried beyond the classroom and the receipt of a degree. The attainment of managerial positions requires a considerable period of internship in actual business experience, as one essential, "judgment," is developed in no other way. Until this idea of internship takes hold of the college graduate there will con-

tinue to be a tremendous amount of restlessness and changing of jobs the first few years out of college, and the years which should constitute a valuable training for the future business executive will continue to be to him a period of disappointment. Let the professors make their courses as interesting as they will by fascinating cases gathered from the actual business world, but let them also point out that these transactions were not consummated by men just out of college, and that it took years of business experience to develop the judgment necessary to handle the situation properly.

This idea of internship breaks down, to a certain extent, the hard and fast job classification of the efficiency expert, for jobs become training grounds and no one is employed for a specific position and allowed to remain there indefinitely. For this reason the men at the colleges do not always understand what type of man is wanted when the representative of the a company visits the school. In the case of accounting work, for instance, one psychologist says that an "introvert" will probably find greater self-realization in this occupation than an "extrovert." On the other hand he says that a majority of executives are "extroverts." The personnel director of one of the larger colleges expressed the belief that he could select men who would "stick" if the corporation would give him the specifications of the job. For accounting work he stated he would select a man with a high order of intelligence, rather deliberate in action, of even disposition, and congenial personality, and he added that almost invariably he would smoke a pipe. These personnel men do not understand that the large industries do not want men who will necessarily remain in the same line of activity in which they start. They want the outstanding leader with initiative and ambition who is willing to undergo an internship in routine work, who is patient enough to acquire a knowledge of the extensive organization and its way of doing business, and who, at the same time, has the ability to build upon this foundation and become a successful business executive when his judgment has been sufficiently ripened through internship in subordinate positions.

The General Electric internship for non-technical college graduates has been developed in the fields of accounting, statistics, and finance—fields which do not require the background of engineering education as do the engineering and manufacturing departments and, to an important degree, sales also, because of the technical nature of the products manufactured.

Five years ago a group of forty-five men were employed for this training program. Twenty of these were graduates of business administration courses, twenty-two were "liberal arts" or science graduates, and three were engineers. Upon reporting for duty each one was assigned to a simple routine job having to do with some aspect of accounting work. It may have been filing vouchers, checking invoices for extensions, footings, account classification, and approvals, checking receiving reports, sorting requisitions, issuing invoices and credits, balancing details of statistical machine calculations against control schedules, or something similar. No distinction was made between the men who had studied accounting and those who had not. As each one began to understand what was going on around him he was moved to different tasks for training and gradually advanced to more responsible duties as he demonstrated his ability.

The theoretical study (given entirely out of office hours) required of these students varied, depending upon the amount of study in college in the subjects of accounting, finance, and business law. A liberal arts graduate or an engineer was required to attend a two-hour class in elementary accounting and a two-hour class in business law each week at the start of his training. The young men who had majored in accounting work took only a two-hour course in advanced accounting, as an aid to improving their grasp of the relation between theory and practice. For the first group of men the theoretical study extended over a period of three years, whereas the second group required only two years to finish. The complete accounting program now given consists of courses in elementary accounting, corporation accounting, corporation finance, auditing, and industrial analysis and control (factory management and cost problems from an accounting viewpoint). The courses in business law cover the subjects of contracts, agency, partnerships, corporations, sales, negotiable instruments, bankruptcy, unfair competition, decedents' estates, patents, taxes, transportation claims, and other subjects which are of importance in a large manufacturing enterprise.

The fall of 1927 finds twenty-four of the 1922 group of forty-five recruits still on the payroll of the Company or in positions with associated interests in which we placed them. Of this twenty-four, eleven are from the group of business administration graduates, eleven from the liberal arts group, and two are engineers. An

analysis of the positions which they now hold will answer the question as to what a college graduate can expect after five years of experience and will show how this group of men capitalized their internship in accounting and used it to handle successfully a considerable variety of positions in the business world. The twenty-four positions now held by these men fall into the following classification:

General Administrative	1
Administrative—Accounting	5
Administrative—Publicity	2
Assistants to Executive and Commercial Department	
Managers	3
Travelling Auditors	7
Merchandise—Accounting, Finance, and Sales	3

The man of the first classification is one of two executives in full charge of the activities of a subsidiary company which is the largest of its kind in eastern New York outside of New York City. Of the second group one man is chief accountant of a subsidiary company in the Orient, one is manager of the accounting department of a subsidiary company handling Canadian business, one is in charge of accounting at one of our important works, and the other two are in charge of accounting departments of a branch lamp factory and subsidiary distributing company, respectively. The two engineers are in this group. One man of the third group is assistant to the manager of the Company's Publicity Department, where he is in charge of budgets, costs, personnel, and other duties of an administrative nature. The other man is in charge of one of the most important functions of this same department. The fourth group is an interesting one because it shows that, in spite of the lack of an engineering training, a young man with outstanding business ability can contribute something to the commercial activities of the Company. Two of the men are assistants to commercial managers in the field and handle a variety of duties such as budgets, statistical statements, publicity, personnel and other tasks which naturally fall to the personal representative of the manager. The other man is in the executive offices of the Company analyzing statements, working up comparisons of various sorts, and doing other interesting tasks connected with the work of the president's office. He is also studying a law course nights to fit himself more completely for corporation work. The fifth group is doing work anal-

ogous to the most interesting and important assignments found in public accounting. In large companies internal audit work is now a definite thing and affords in itself a most diversified training. Several of the men mentioned in the previous groups had experience in this work before being assigned to their present positions. The merchandise field has proved attractive to three of the men, for in this work an engineering training is not essential as in apparatus sales. The last three men are handling special assignments in accounting work.

In many instances the young men who have branched away from actual accounting have attributed a considerable part of their success to the insight into the heart of business which their internship in accounting gave them.

The above describes the scope of experience and the type of opportunities which exist as an outlet to accounting training in the General Electric Company. The aim of this training is to give broad business experience, and if a young man does not find the field of activity which interests him by the end of a normal internship period he leaves with the assurance that his training will be of value on his next job. Opportunities of a similar nature are offered in other companies. It is only necessary for the young men to discover them.

My recruiting trips bring me into personal contact each year with more than six hundred seniors who are looking for business positions. This contact, together with subsequent acquaintance with the some sixty accepted internes each year, has shown me that these men have a very vague idea of what to expect after graduation. It is safe to say that the majority expect too much. I am firmly convinced that the adoption of the idea of internship by young men during their first few years out of college will aid greatly in their advancement. I know that a number of the young men who have been most discouraged at the end of one year, but who decided to stick it out a while longer, have made outstanding progress from then on. By the end of two years they were able to consider themselves established. If young men expected these periods of depression as a matter of course, they would survive minor jolts and discouragements and be better for having gone through them. It has been said that "ease in youth is the mother of degeneracy." This statement could well be paraphrased to read, "ease on the first job is the mother of failure."

Business success is chiefly determined by aptitude and attitude. With the idea of internship to give the right attitude, the first years of business experience will do much to determine a young man's aptitude for his chosen work.

The popularizing of this idea of internship by university faculties will assist the young man entering the business world to obtain a truer picture of conditions as they actually exist, and will place the feet of promising young men more directly upon the real road to success.

EXAMINATIONS OF THE AMERICAN INSTITUTE OF ACCOUNTANTS*

By ERIC L. KOHLER, *Kohler, Pettengill and Co.*

Among the provisions of the constitution of the American Institute of Accountants, it is stated that one of the objects of the Institute is "to develop and improve accountancy education." The endowment fund was established largely for the promotion of this object; and for years the Committee on Education has been functioning with great vigor in an attempt to analyze and formulate the trend of accounting instruction. In previous regional meetings and in sessions of the Institute, educators have been called upon freely to express their ideas as to the problems which they face. Each year the recommendations which have proceeded from these discussions have become more and more specific; in the report of the Committee on Education of a year or so ago, there even appeared a standard curriculum which suggested the minimum points a course in accounting should cover.

Yet it appears that nothing has been said as to the importance to the academic field of the semi-annual examinations set by the Institute's Board of Examiners. Members of the teaching profession have regarded these examinations, especially since their adoption by thirty or more state boards of examiners, as furnishing important criteria for student instruction. No doubt the Institute's Board of Examiners, with appropriate professional modesty, would disclaim any effort, direct or indirect, to invade or in any way to influence the profession of teaching. But a denial of intent cannot alter the use to which the examinations have been put. Problems and questions of the Board have been incorporated into probably every advanced accounting course and text, and the implications which their solutions involve have been more or less fruitful sources of discussion in every classroom. If academic analysis has tended to magnify their importance beyond what may appear to be their original purpose, the Institute's examiners are,

*Adapted from an address delivered before a regional meeting of the American Institute of Accountants at Kansas City, Mo., June 9, 1927.

indeed, to be held blameless; but they should not remain unaware that the examinations are being subjected to careful academic study and that these examinations, as adequate tests of the prospective accountant, must, in the end, stand or fall in conformity with the results of this analysis.

Several reasons exist for the academic importance of the Institute's examination problems and questions. One is that, with the well-nigh universal adoption of the problem method in accounting instruction, the situations contained in the examinations offer what appears to be appropriate material for the classroom. Another reason lies in the present insufficiency of text and problem material for advanced courses in accounting theory and practice. Accounting instructors must depend on fragmentary readings and available problems. The only available problems are in the Institute and state C. P. A. examinations, of which, of course, the Institute's enjoy the greatest prestige even in states where its examinations are not given. A third reason is that they constitute an essential part of the review courses, given by many institutions, preceding state C. P. A. examinations. And, finally, many teachers of accounting believe that standards of instruction can be set only by the Institute or other similar national body for the reason that the public demands on the profession are constantly changing, and that the only present vehicle for the transmission of such changes to the accounting instructor is to be found in what the profession's appointed examiners expect of its candidates for membership.

Under these circumstances, the value of the Institute's examinations to the teaching of accounting should not be underestimated. Until the literature and problem material of the profession have been considerably augmented, they will continue to be of great importance in the preliminary training of the accountant.

But do the Institute's problems and questions furnish good teaching material, and do they reflect the latest developments and requirements in the profession? I shall attempt to consider here only the first part of this question: namely, the adequacy of the examinations as teaching material, with particular reference to those two longest sections of the examination which are designated "Theory of Accounts and Practical Accounting."

In the May, 1927, examination, there were twelve problems in the two "Theory and Practice" sections, of which six were required

to be answered within a period of ten hours.* It is believed that these twelve problems are typical of those ordinarily given by the Board. In order that the source of the writer's general conclusions as to the Institute's examinations may be more fully appreciated, a review of these twelve problems will be given in succeeding paragraphs. They will be referred to as problems 1-12, although they are numbered 1-6 in the two separate sections of the examination. If the reader is not familiar with the May, 1927, examination, he may procure the issues of the *Journal of Accountancy* (July to November, 1927, inclusive) in which both problems and solutions appear, and compare the writer's remarks with them.

Problem 1 requires the conversion of the balance sheet and operating accounts of a foreign subsidiary which was incorporated a year previous and apparently in operation before that time. A number of facts necessary for any satisfactory solution to this problem are missing. Assumptions are necessary to cover the following points: (1) the cost of the fixed and other assets possessed by the foreign subsidiary at the date of incorporation or acquisition; (2) the method of inventory valuation at the end as well as at the beginning of the year, including the probable presence of unearned profits in the beginning inventory; and (3) the disposition of the subsidiary's profit, none having been transmitted during the year.

In Problem 2, journal entries are called for to close the books of one company selling its assets to another, and to show the transfer on the books of the purchasing company. Three doubtful points are immediately encountered: (1) a "reserve for inventory decline" may be regarded as a valuation account or as a contingent reserve; (2) the valuation of the assets, especially the intangibles, to be taken up on the vendee's books is not indicated; and (3) the significance of a "capital surplus" account on the books of the vendor is left in doubt—like the inventory reserve, it might or might not be transferred to the accounts of the vendee company, depending on its meaning.

Problem 3 calls for a "report" on a net increase in total departmental profits of one period when compared with another, although all percentages of profit decreased. Only one answer can be given:

*The time element in the examination has, in the last few years, been carefully checked, with the result that the complaint that the examination is a race against time can no longer be made fairly.

namely, that sales in the relatively profitable departments increased sufficiently to more than offset the increased cost of sales. Apparently the most important part of the solution required here was some such statement as "without a study of merchandise and operating costs, further analysis, from the facts cited, is not possible."

In Problem 4, the examinee is asked to state his "conclusions regarding inventory valuation" where factory burden, spread on a percentage to direct labor, was not completely absorbed during the year, although the plant had been operated to capacity. Probably the examinee was expected to say: (1) that something was the matter with the method of burden absorption—perhaps a machine rate should have been applied (although from the statement that the company was "engaged in the manufacture of machinery" no clue can be abstracted); (2) that the percentage had been carelessly computed; (3) that overhead costs included extraordinary items not contemplated in the original estimate; or (4) that processes of production changed during the year. But these are not "conclusions;" they are merely guesses, and under the circumstances cited, one guess is as good as another.

Problem 5 asks for a spread of discount and expense over an issue of serial bonds. If the only available income tax ruling (I. T. 1412) be followed—and the problem calls for the sum that may be deducted, "for Federal Income Tax purposes, for each of the years"—the discount and expense would be spread over the various series in proportion to the monetary amounts thereof, without regard to the life of each series; a palpably false method, the method generally adopted (and commonly followed and accepted on income tax returns) being based on the ratio of the interest to be paid each year to the total interest to be paid. Even the advanced student of income taxation would hesitate for some time in solving this problem. Could not the method or methods desired have been stated?

Problem 6 requires the ascertainment of a bonus to be paid certain managers from "the net book profit of the company . . . after providing for Federal Income Taxes." While the problem thus calls for two solutions, since "net book profit" may be conceived as a figure before or after decrease by the amount of the bonus, it is common enough to find ambiguous agreements of a like type in practice, and no criticism can be raised except that a quotation

from the agreement would have been preferable to a digest thereof.

Problem 7 (i. e., number one of the second half of "Theory and Practice") presents the estimated income and expense of a fire insurance company over its first five-year period. The only point involved is to prorate the premiums from one-, three-, and five-year policies, and to ascertain how much higher than the expected fifty per cent the loss ratio could go without impairing capital. No definition or explanation is given for unearned premiums or capital, and the point at which agents' commission should be deducted does not appear. Thus, unearned premiums may be decreased immediately by agents' commissions and the balance prorated over the periods of risk, or the gross premiums may be so prorated and the agents' commissions deducted in the first year—the former being, of course, the more correct method. A surplus of \$250,000 has apparently been paid in by stockholders; should this sum be included in "capital," or was that amount contributed for the purpose of absorbing the losses of early years? Finally, should the expected fifty per cent loss ratio be applied to gross or net (after deducting agents' commissions) premiums earned? Even to an accountant experienced in fire insurance practice, these questions would present difficulties which would have to be disposed of before he could proceed with a solution.

Problem 8 will be subject to many a heated classroom controversy. From a given trial balance and appended information, adjusting journal entries and a balance sheet, with comments, are called for. Among the items that may be variously interpreted are the following: (1) checks dated in January and put on the books as of December may be assumed to represent either liabilities at the end of December or expenses of January; (2) the date of a bond issue is not given, making the examinee uncertain as to whether further interest should be accrued or not (six months' interest has already been paid; (3) the method of inventory valuation is not shown; (4) no description accompanies what appears to be a liability labeled "Bonded Municipal Assessments;" (5) the source of an item called "capital surplus" is not indicated; and (6) the Federal income tax liability cannot be ascertained, net income not being determinable. But these obscurities, befuddling though their presence may be, are wholly outclassed by the item of depreciation and obsolescence. In one paragraph the statement is made that at the beginning of the year certain ships were acquired from a pred-

cessor company and spread upon the books at appraised values; in the next paragraph the same ships are said to have been taken over at book values. No rate of depreciation appears and the examinee has no knowledge of whether or not the depreciation already provided is correct or whether it should be increased one hundred per cent, since the statement is made that the old rates of depreciation have been reduced fifty per cent. It is possible also to infer that by virtue of the fact that the assets were purchased in a depreciated condition, the price paid for them must be amortized at a rate much higher than that employed by the predecessor company, but how much greater is a point left, apparently, to the imagination of the already distracted examinee. Even this is not the end. The old ships were scrapped during or before their acquisition by the new company. The selling prices of all but one were established in January of the following year. At what value is the remaining ship to be carried, and is it actually in disuse? The problem states that it was a "sister-ship" to one whose scrap value was known; but were their scrap values identical? Something more satisfying than inference is necessary here. Further: were the excessive prices paid for the ships really goodwill in part?

Problem 9 calls for comments on a balance sheet on which a single figure only appears for net worth. The examinee was undoubtedly expected to set up net worth in detail, showing the par value of preferred and common stock outstanding and the apparent deficit. Not enough information appears, however, to enable the examinee to determine whether the deficit is to be attributed to operating losses or to the issue of capital stock at a discount.

Problem 10 is a brief but excellent problem dealing with the distribution of profits as between the partners of a professional firm. But one assumption need be made: that the ratios of sharing collection losses on accounts receivable of two predecessor partnerships are the same as the ratios of sharing the "preferential claims" on new business from old clients. Probably this assumption was made by most examinees without question.

Problem 11 presents a situation which demands action on the part of the Board of Directors of a company, the accountant's final procedure being dependent on the Board's decisions. In brief, the proceeds from the sale of bonds, together with cash on hand, are used to retire a ninety per cent stockholder on the basis of \$250 a share when the book value is \$190 a share. Is the premium paid

on retirement the equivalent of a dividend? Whether the premium can be charged in part to a revaluation surplus and what values may be assigned to subsequently issued no-par-value stock are further valid questions for discussion. Possibly, however, it would have been better to ask for the accountant's recommendations to the Board, inasmuch as a complete recasting of net worth was involved.

Problem 12 is an "actuarial" problem requiring merely a knowledge of the arithmetic of compound interest and present value. Ten values of 1 or $1+i$ are given, of which five need be employed; only direct multiplication is necessary for the solution.

For teaching purposes, the problems thus leave much to be desired. While in most instances a correct technique is reflected in their statement, as a practical matter it would seem that thus far it has been impossible to devise problems free from ambiguities. All but three of the twelve problems just mentioned suffer from one or more obscure or incomplete points; and the same may be said of all the examinations since their first appearance in 1917.*

Vague statements are the chief fault of poor problems. Thus, problem 8 has excellent possibilities; it calls for the correct disposition on the balance sheet of assets in disuse, the computation of the Federal income tax involving loss in value, the treatment of appreciation as offsetting depreciation, and of excessive values paid for assets already scrapped before their purchase. But the language of the problem defies interpretation of at least ten points necessary for an intelligent solution. Accountants with excellent training and experience must have wasted exasperating hours on problem 8 in the futile attempt to glean consistent facts from equivocal statements.

In defense of missing data and abstruse questions the point is often made that the examinee should be acquainted with the art of inditing qualifications and of stipulating what he conceives to be facts necessary for the solution. In C. P. A. review courses, it is not uncommon to find whole lectures devoted to the art of making assumptions and of qualifying solutions. In practice, however, the accountant who encounters difficulties similar to those I have

*The writer has solved the problems in every examination thus far set by the Institute. Approximately one problem in every five may be said to be free from serious faults; but the problems which have the least number of flaws are frequently innocent of teaching value.

enumerated has reference to records and data from which he can unearth the additional information he desires. Examination qualifications and assumptions are in no way comparable with the certificate or report qualifications of the professional auditor, and I do not believe that any examiner to-day would claim that they have any value.

However, I do not wish to convey the idea that the Institute's Board of Examiners has necessarily been remiss in its duties. Accounting instructors have told me, and my own experience bears this out, that it often takes years to perfect the statement of a single problem, no matter how careful the original workmanship may have been. The specific difficulties which I have cited in the May, 1927, examination parallel those attending the original problems one will find in any of the current accounting texts. If some plan could be devised for solving the problems in advance of the examinations, and if solutions could be secured from a number of critically-minded persons, many of the objections, especially the more obvious ones, could be forestalled. Certainly if the problems are to be of academic value (and I believe this responsibility on the part of the Board of Examiners should be recognized) some such course of action must be evolved.

It is possibly unnecessary to state that because of such problems as these violent criticisms have been leveled against the Institute from certain quarters, not the least of which have arisen from within academic circles. These criticisms are directed toward the Institute's examinations not only with respect to their adequacy as teaching material but also with respect to their propriety as examinations preceding the granting of the C. P. A. certificate. There is a feeling that if the examinee's time, a good share of which is now spent in pondering over difficulties having nothing to do with a testing of his accounting abilities, were to be devoted uninterruptedly to the examination, many more points could be injected into the problems without adding to the time required for their solution.

A STANDARD COST PROBLEM

By J. C. GIBSON, University of Wisconsin

Standard costs are the natural outgrowth and development of budgetary accounting, which, curiously enough, was first used by industry in connection with factory burden. Gathering refinements along its path, the system has reached its present stage of development in connection with manufacturing after a complete circuit of functional application. That the subject is an important one is evidenced by the fact that considerable time has been devoted to it at each of the last five annual meetings of the National Association of Cost Accountants. That it presents many controversial features is likewise apparent from even a brief study of the limited available literature, and the ultimate solutions of these problems—as the thought and effort in the field progress—will doubtless differ considerably from many of the current practices.

In the next decade, unquestionably, a great impetus will be given this subject by practicing cost accountants; and university instructors in this field must be prepared not only to discuss standard costs intelligently, not only to enlighten students as to the present development of the subject, but to lead the way to scientific and practical perfection of this method of cost accounting. A list of references prepared by Mr. F. H. Elwell, Professor of Accounting at the University of Wisconsin, is given at the end of this discussion, the study of which will enable the instructor to familiarize himself with standard costing in its present stage of development. It is clear that much additional research is required to determine the types of industry to which the system is applicable, its practical limitations, the best methods of securing desired information, the most profitable use of information obtained, and other basic material which will aid in the proper correlation of standard costs with business requirements in the field of accounting.

There is no attempt made in this article to cover the subject of standard costs in a comprehensive or exhaustive manner. Rather the object is to supplement the meager literature in the field in that phase of the subject in which it is particularly weak, namely,

the technical accounting phase. To accomplish this a problem prepared and used in the cost accounting course at the University of Wisconsin will be explained and a solution presented.

The origin of this problem is as follows. Although desiring to devote some time and attention to the subject of standard costs in a detailed rather than in a superficial and general manner, we were unable to find any material on the subject which was complete in form or adaptable to laboratory work. Even G. Charter Harrison's published material—to which the writer is indebted for much that will appear later in this article—consists of discussions, formulae, and summaries, rather than the explanation of the accounting procedure to be required under this plan. However, after careful search, a plant operating under a complete standard cost plan was located in West Allis, and through the courtesy of the president of this organization all cost information was made available to us and every assistance given. Thus a problem, academic in nature, but grounded on sound, practical, and successful procedure, was developed.

In studying standard cost, of course, it is necessary to know what is embodied in the system and what distinguishes it fundamentally from other cost systems. A standard cost system contemplates the ordinary plant analyses and, in addition, it requires a product analysis in sufficient detail to permit the establishment of standards for plant production. The standards thus established are then checked periodically with actual results and variations from standards obtained. It is believed by advocates of this system that, by directing the attention of executives to variations from standard, a much better basis for efficient management is afforded.

It is evident that the bulk of the work under this system is done in advance of production. The setting of standards involves the employment of an efficient engineering department. This department must make blue prints and prepare adequate specification data based on careful preliminary survey of the product in order to furnish correct material, labor, and burden standards. Tests must be made and checked and occasionally corrected as, for example, when a different type of machine is installed. One of the present controversies relative to the setting of standards is the advisability of changing standards once they have been set. Some advocate the continued use of the old standard once it has been proved; others, a

current standard set annually in accordance with current price levels.

After standards have been established, all factory operations are recorded at standard costs based on the volume of production. This eliminates the maintenance of detailed job or process costs records and results in the reduction of clerical expense. The only record of production required is the quantity manufactured, to which are applied the standard costs as predetermined, and the value of production obtained. The record of quantity is most conveniently obtained from time cards. These make possible an analysis of product at the various stages of process. The time cards should be checked for quantity accuracy at convenient intervals during production by applying the usual inspection checks, or the adoption of measures similar to those employed under piecework wage-payment plans. Another method is to establish stations into which the product is turned for count before being again put into production channels.

Besides reducing expense directly, a big advantage claimed for the system is the indirect saving resulting from the current nature of the cost reports. In the plant investigated an analysis of production is made daily. By ten o'clock on the following morning the production manager and the foremen are furnished with a statement of departmental production efficiency for the preceding day and with the cumulative results for the month to date. The report given them may be summarized as follows:

	<i>Capacity Hours</i>	<i>Hours Worked</i>	<i>Per Cent of Cap.</i>	<i>Standard Production</i>	<i>Actual Production</i>	<i>Operating Efficiency</i>
Day	520	456.4	87.7	\$ 345.69	\$ 348.10	100.7
To Date	1,560	1,334.7	85.6	1,021.36	1,022.38	100.1

End efficiency for day, 88.3 per cent; end efficiency to date, 85.7 per cent.

The superior value of current information of this character as compared with monthly reports rendered from two to six weeks after the close of the period is self-evident. Management can become scientific in reality with such information made available daily with resultant indirect savings of considerable importance.

The study of costs reveals that there are two causes for cost variations; either a change in price level or a fluctuation in efficiency. Applying these two causes to the three elements of cost we obtain the six following variations:

1. Changes in Material Prices.
2. Changes in Material Consumption.
3. Changes in Labor Rates.
4. Changes in Labor Efficiency.
5. Changes in Burden Amounts.
6. Changes in Volume of Production.

Some authorities expand the burden variation causes further to permit of more detailed analysis and interpretation. Thus Harrison enumerates fourteen possible causes of cost variation, and this list might possibly be expanded should circumstances warrant. On the other hand, in many cases the use of fourteen variations might prove more burdensome than advantageous.

The following examples show how the variations are determined and what they indicate in connection with material. Assume that the standard cost per unit of finished product has been established as follows:

Material	1 unit at \$1.00 per unit	\$1.00
Labor	1 hour at \$1.00 per hour	1.00
Burden	1.00
Total Standard Cost per Unit		\$3.00

We will next assume two cases of actual cost as follows:

Case I

Material	1 unit at \$2.00 per unit	\$2.00
Labor	1 hour at \$1.00 per hour	1.00
Burden	1.00
Total Actual Cost per Unit		\$4.00

Case II

Material	2 units at \$1.00 per unit	\$2.00
Labor	1 hour at \$1.00 per hour	1.00
Burden	1.00
Total Actual Cost per Unit		\$4.00

To explain the \$1.00 increase in actual costs, it is necessary to make certain comparisons. A comparison of actual quantities at actual prices with actual quantities at standard prices will indicate any change in price level. A comparison of actual quantities at standard prices with standard quantities at standard prices will indicate any change in consumption. Applying these comparisons to Case I we find the increased cost of \$1.00 due to change in price level.

Case I—Analysis

Actual Quantity at Actual Price	\$2.00
Actual Quantity at Standard Price	1.00
<hr/>	
Variation Due to Increase in Price	\$1.00

In Case II we find that the increase was not due to change in price but was due to increased material consumption.

Case II—Analysis

Actual Quantity at Actual Price	\$2.00
Actual Quantity at Standard Price	2.00
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Variation Due to Price	\$0.00
Actual Quantity at Standard Price	\$2.00
Standard Quantity at Standard Price	1.00
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Variation Due to Spoilage, etc.	\$1.00

From the foregoing discussion and analysis it is apparent that in connection with direct material and productive labor there are only two possible variations. In connection with burden the analysis of causes of cost variations may be profitably expanded. In order to permit of reference reading on the part of the student which will aid in the solution of the problem, the following data are taken from the section in "Management's Handbook" by G. Charter Harrison. It is necessary to study carefully the classes of expense into which he divides burden in order to understand the subdivisions of burden variation. It is also necessary to remember that to obtain a standard month the total number of expected working hours in the year is divided by 12. The calendar month is, therefore, subject to adjustment before certain comparisons with standard may be made.

The numbers 1 to 14 indicate the various causes of cost variations—number 3, for instance, indicating a cost variation due to idle time.

In the Classification by Formulae Element:

A indicates actual time or materials expended, figured at the actual rate of pay or price of material.

B indicates actual time or materials expended, figured at the standard rate of pay or the standard price of material.

B-1 indicates standard salary for the actual weeks and fractions of a week in the month. It is given by the formula:

$$B-1 = \frac{C \text{ (Standard cost for standard month)}}{\text{Number of Weeks in standard month}} \times \text{Actual number of weeks in month}$$

Number of weeks in the standard month is computed as follows:

Days in year, 365

$$\text{Weeks in year } \frac{365}{7} = 52.1428571$$

Weeks in standard month (1-12th of year):

$$\frac{52.1428571}{12} = 4.345238$$

B-1 for the various months is, therefore:

$$\text{For a 28-day month } B-1 = \frac{C \times 4}{4.345238} = C \times 0.920547948$$

$$\text{For a 30-day month } B-1 = \frac{C \times 4 \frac{2}{7}}{4.345238} = C \times 0.986301325$$

$$\text{For a 31-day month } B-1 = \frac{C \times 4 \frac{3}{7}}{4.345238} = C \times 1.019178741$$

C indicates the standard cost for the standard month.

D indicates the standard cost for the number of standard working hours in the actual month.

E indicates the standard cost for the hours actually worked in the month.

H indicates the standard cost of the actual production in the month. For instance, if the standard production per hour has been taken as 1,000 pieces, the standard production in the standard month of 212 hours would be 212,000 pieces; and if the actual production has been taken as 160,000 pieces,

$$H \text{ is } \frac{160,000}{212,000} \times C, \text{ or } 0.754717 \times C.$$

It will be noted that the table of formulas provides different formulas to be used in the analysis of cost variations for different classes of expense. The necessity for this is evident when the difference in character of the various classes of expense is considered from the viewpoint of cost accounting. For example, a variation in the cost of an expense in the nature of a fixed charge per month may be analyzed into as many as five different causes, whereas the cost of the services of a workman paid on an hourly basis and paid only when he is actually working, can vary only through the operation of two causes; viz., variations in time, and variations in rate paid per hour.

In the Classification According to Class of Expense:

b indicates an expense which is in the nature of a fixed monthly charge, such as the salary of a superintendent.

c indicates an expense which is in the nature of a fixed charge per working day, as for instance, the wages of an employee who works every day of the year except Sundays or holidays, regardless of whether or not the plant is operating.

d indicates an expense which is in the nature of a fixed charge per day

worked, as for instance, the wages of a shop clerk who is paid on an hourly basis and only when the plant is operating.

e indicates an expense which is in the nature of a fixed charge per week, as for instance, the salary of a stenographer paid weekly. This class also includes employees paid on an hourly or daily basis and working every day in the year, as for instance, night watchmen.

f indicates a distributive expense. The various elements entering into the cost of a distributive expense, as power, for instance, would be classified on the power cost sheet in the same manner as the expenses of a producing department; a weekly salary paid an engineer would be placed in class *e* on the cost sheets of producing departments which would be charged with a proportion of the power costs distributed from the power cost sheet, this power expense would be placed in class *f*.

p indicates an expense tending to vary directly with the production. In this class come all forms of producing labor, and material and supplies consumable in proportion to production.

In the Classification of Cost Variations by Cause:

Increase or Decrease

- 1=Net
- 2=Due to calendar variations
- 3= " " idle time
- 4= " " production efficiency
- 5= " " labor rate variations
- 6= " " labor time variations
- 7= " " material prices
- 8= " " material consumption
- 9= " " number of set-ups
- 10= " " time of making set-ups
- 11= " " variations in distributive expenses
- 12= " " variations in miscellaneous expenses
- 13= " " variations in the rates of salary paid
- 14= " " variations in the salaried staff

Formulas to Apply in the Determination and Analysis of Cost Variations

	Fixed Monthly Charge	Fixed Charge per W'king Day	Fixed Charge per Day	Fixed Charge per Week or W'ked Day	Distributive Expense	Set- Up Expense	Charge Vary- ing with Prod.
1. Net Increase or Decrease	H-A	H-A	H-A	H-A	H-A	H-A	H-A
2. Calendar Variations	D-C			D-B			
3. Idle Time	E-D	E-D		E-D			
4. Production Efficiency	H-E	H-E	H-E	H-E			
5. Labor Rate Variations	B-A	B-A	B-A	B-A		B-A	B-A
6. Labor Time Variations	C-B	D-B	E-B	B ₁ -B			H-B
7. Material Prices	B-A	B-A	B-A	B-A			B-A
8. Material Quantities	C-B	D-B	E-B				H-B
9. Variations in No. Set-Ups							
10. Variations in Set-Up Times						H-E	
11. Distributive Expense					H-A	E-B	
12. Expense — Miscellaneous	C-A	D-A	E-A				H-A
13. Salaries — Rates	B-A			B-A			
14. Salaries — Staff	C-B			B ₁ -B			

To illustrate the use of the formulae given, we will use a fixed monthly charge or "class b" expense with conditions as follows:

Standard salary of foreman, \$300 per month.

Foreman was discharged on January 31 and two men were hired to replace him at \$200 per month each.

Production for February was 80 per cent of standard.

Possible hours in February, 200; actual hours, 180.

Substituting in the formula given:

$$A = \$400$$

$$B = 600$$

$$B-1 \text{ does not enter as this is a class } b \text{ expense}$$

$$C = 300$$

$$D = 283.02 (200 \div 212 \times 300)$$

$$E = 270 (180 \div 200 \times 300)$$

$$H = 240 (80 \text{ per cent of } 300)$$

By referring to our chart and making the necessary subtractions after substituting in the formula, we obtain the following analysis of changes in foremanship expense:

Formula: $H - A = D - C + E - D + H - E + B - A + C - B$

	Increase	Decrease
Calendar Variations	\$ 16.98	
Idle Time	13.02	
Production Efficiency	30.00	
Salary Rates		\$200.00
Number of Employees	300.00	
	<hr/>	<hr/>
	\$360.00	\$200.00
Net Variation	\$160.00	

In the problem presented later, the classes of expense are indicated before the account title. These classifications are somewhat arbitrary as, for example, the classification of all indirect labor as a "d" expense would never occur in practice. For the purpose of illustration, however, it will be necessary to assume that the indirect labor is actually a charge per day worked and, also, that the other items are classified properly.

The method of presentation at Wisconsin is by means of several preliminary lectures in explanation of Harrison's formulae and analyses in general, and then the specific explanation of the problem itself by working the solution for Department 1 step by step with the class. The student is then required to prepare the solution for Department 2 and to complete the problem. Department

2 is purposely very similar to Department 1, but sufficiently different to necessitate careful thought on the part of the student even with Department 1 serving as a model of procedure. The class should be able to record the transactions on the general books following general accounting procedure and obtain a trial balance without difficulty. Only the cost records require further explanation and instruction.

Problem

The Mandaly Mfg. Co. of Madison, Wis., operating under a standard cost system, presents the following balance sheet as of Jan. 1:

<i>Assets</i>	
Cash	\$10,000
Petty Cash	500
Accounts Receivable	18,000
Raw Material Inventory	12,000
Work in Process Inventory	7,500
Finished Goods Inventory	11,800
Land	4,000
Buildings	\$21,000
Less Reserve for Depreciation	900
	20,040
Machinery	\$34,520
Less Reserve for Depreciation	7,100
	27,420
Small Tools	3,110
Office Furniture	\$ 1,200
Less Reserve for Depreciation	470
	730
Unexpired Insurance	1,490
Factory Supplies Inventory	2,357
Total Assets	\$118,947
<i>Liabilities</i>	
Accounts Payable	\$16,100
Accrued Taxes	1,500
Accrued Wages	1,780
Notes Payable	10,000
Total Liabilities	29,380
<i>Proprietary Interest</i>	
Capital Stock	\$75,000
Surplus	14,567
Total Proprietary Interest	\$ 89,567

The budget estimate of manufacturing burden for the ensuing year is as follows:

<i>Class of Expense</i>	<i>Total</i>	<i>Dept. 1</i>	<i>Dept. 2</i>
d Indirect Labor	\$4,000	\$3,000	\$1,000
b Taxes	1,800	1,200	600
b Depreciation (1% and 5%)	1,936	1,223	713
b Insurance	630	420	210
f Repairs	810	535	275
f Heat (200 tons @ \$6.00)	1,200	700	500
f Light	180	120	60
f Power (60,000 K. W. @ \$0.03)	1,800	1,000	800
p Factory Supplies	900	500	400
p Tools Used	620	480	140
b Superintendence	6,000	2,600	3,400
e Watchman	1,200	800	400
c Cost Office Salaries	3,900	1,700	2,200
Total	\$24,976	\$14,278	\$10,698

The Company manufactures two products, known as Artus and Cortus, for which cost standards have been established based on current standards as detailed below:

Artus		Cortus	
Material:		Material:	
Department 1	\$19	Department 1	\$10
Department 2	6	Department 2	5
	—\$25		—\$15
Labor:		Labor:	
Dept. 1, 60 hrs. @ \$0.40	\$24	Dept. 1, 25 hrs. @ \$0.40	\$10
Dept. 2, 32 hrs. @ \$0.50	16	Dept. 2, 20 hrs. @ \$0.50	10
	— 40		— 20
Burden (50% of Prod. Labor) \$12		Burden (50% of Prod. Labor) \$ 5	
	8		5
	— 20		— 10
	\$85		\$45

Estimated Production of Artus—1,000 units per annum.

Estimated Production of Cortus—400 units per annum.

Hours in Standard Month, 212; Possible Hours in January, 209.

Results of January operations are as follows:

Sales:	
90 units of Artus @ \$125	\$11,250.00
30 units of Cortus @ \$75	2,250.00
Accounts Receivable Collected	16,975.00

Purchases:

Raw Material	2,000.00
Factory Supplies	100.00
Fuel (75 tons @ \$5.00)	375.00
Power (5,000 K. W. @ \$0.033)	165.00
Repairs	50.00
Light (Rate unchanged)	18.00
Tools	130.00

Productive Labor:

Department 1, 5,600 hours @ \$0.35	1,960.00
Department 2, 2,950 hours @ \$0.52	1,534.00
Indirect Labor (Rates unchanged)	300.00
Superintendence (New foreman at \$50 reduction)	450.00
Watchman (\$3.30 per day)	102.30
Cost Office Salaries (Rates unchanged)	315.00
Accounts Payable Paid	12,140.00
Payroll Cash Paid	4,923.00
Taxes Accrued	150.00
Depreciation on Building (1% per annum)	17.50
Depreciation on Machinery	143.83
Insurance Expense	52.50
Fuel Inventory (22 tons @ \$5.00)	110.00
Tools Used	35.00
Depreciation of Furniture	10.00
Administrative Expense—Cash	1,250.00
Sales Expense—Cash	2,170.00
Interest Paid—Cash	60.00
Taxes Paid—Cash	1,630.00
Factory Supplies Inventory	2,362.00

Factory data:

The standard value of material purchased in January is \$2,100.

The storekeeper reports that requisitions for material were filled at standard price of \$2,525; \$1,810 for Department 1 and \$715 for Department 2.

In Department 1, standard requisitions amount to \$1,733; additional to \$77.

In Department 2, standard requisitions are for \$620; additional for \$95.

A summary of the time cards for payroll purposes is as follows:

Department 1—January Summary

Standard	Hours	Actual	Standard	
Capacity	Hours		Prod.	Rate
Actual	Hours			
5,936		5,852		
		5,600	\$2,080	\$2,240
			\$1,960	

Department 2—January Summary

Standard Hours	3,180	<i>Actual</i>		<i>Standard</i>
Capacity Hours	3,135			<i>Prod. Rate</i>
Actual Hours	2,950	\$1,534		\$1,520 \$1,475

Production records show that the factory produced the equivalent of 70 units of Artus and 40 units of Cortus in each department.

There was transferred from Department 1 to Department 2, 95 units of Artus and 50 units of Cortus.

Transfer was made from Work in Process, Department 2, to Finished Goods of 80 units of Artus and 60 units of Cortus.

Analysis of Opening Inventories per cost books follows:

Raw Material	<i>Actual</i>	<i>Standard</i>
	\$12,000	\$12,500
<i>Dept. 1</i>		
Work in Process	<i>Actual</i>	<i>Standard</i>
Material	\$ 1,910	\$ 1,820
Labor	1,840	1,520
Burden	950	760
Total	\$ 4,700	\$ 4,100
<i>Dept. 2</i>		
Work in Progress	<i>Actual</i>	<i>Standard</i>
Material	\$ 1,140	\$ 1,270
Labor	1,090	1,220
Burden	570	610
Total	\$ 2,800	\$ 3,100
Total of Both Departments	\$ 7,500	\$ 7,200
Finished Goods	<i>Actual</i>	<i>Standard</i>
Material	\$ 3,710	\$ 3,386
Labor	5,292	5,076
Burden	2,798	2,538
Total	\$11,800	\$11,000

From the above information prepare:

1. Itemized general ledger accounts
2. Statement of analysis of variation from standard
3. Journal entries for factory books
4. Itemized factory ledger accounts
5. Operating statement
6. Financial statement

Solution
General Ledger
Trial Balance—January 31

Cash	\$ 4,802.00	
Petty Cash	500.00	
Accounts Receivable	14,525.00	
Raw Materials Inventory	14,000.00	
Work in Process	7,500.00	
Finished Goods	11,800.00	
Land	4,000.00	
Buildings	21,000.00	
Reserve for Depreciation	\$ 977.50	
Machinery	34,520.00	
Reserve for Depreciation		7,243.83
Small Tools	3,205.00	
Office Furniture	1,200.00	
Reserve for Depreciation		480.00
Unexpired Insurance	1,437.50	
Factory Supplies Inventory	2,362.00	
Fuel Inventory	110.00	
Accounts Payable		6,798.00
Accrued Taxes		150.00
Accrued Wages		1,518.30
Notes Payable		10,000.00
Capital Stock		75,000.00
Surplus	130.00	14,567.00
Sales		13,500.00
Productive Labor	3,494.00	
Power	165.00	
Repairs	50.00	
Light	18.00	
Indirect Labor	300.00	
Superintendence	450.00	
Watchman	102.30	
Cost Office Salaries	315.00	
Taxes	150.00	
Depreciation	161.33	
Insurance	52.50	
Heat	265.00	
Tools Used	35.00	
Factory Supplies Used	95.00	
Depreciation on Furniture	10.00	
Administrative Expense	1,250.00	
Sales Expense	2,170.00	
Interest Paid	60.000	
	<hr/>	<hr/>
	\$130,234.63	\$130,234.63

On the factory books the standard amounts should now be recorded. These amounts are obtained by referring to the requisition register and the payroll summaries, and by applying the burden rate. Production is stated as seventy units of Artus and forty units of Cortus in each department. These quantities apply equally to all three elements of cost. In practice, the payroll records form the basis for production measurement, as the relationship between material in process and the stage of completion of the product will seldom, if ever, be constant. The main portion of the material entering into finished product may be put into process in the first few operations while labor naturally increases in amount as the product approaches completion. The classification of cost accounts and the journal entries to record postings from the above records for Department 1 are as follows:

Standard Raw Material	Standard Burden Distribution
Actual Raw Material	Actual Burden Distribution
Material Consumption Variation	Burden Distribution Variation
Material Price Variation	Burden Amount Variation
Net Material Variation	Burden Rate Variation
Standard Labor	Net Burden Variation
Actual Labor	Undistributed Burden
Labor Efficiency Variation	Manufacturing P & L
Labor Rate Variation	Material in Process
Net Labor Variation	Labor in Process
Standard Burden Amount	Burden in Process
Actual Burden Amount	

- | | |
|--|------------|
| 1. Material in Process | \$1,910.00 |
| Labor in Process | 1,840.00 |
| Burden in Process | 950.00 |
| Manufacturing | \$4,700.00 |
| To record the opening inventories | |
| 2. Material in Process | \$1,733.00 |
| Standard Raw Material | \$1,733.00 |
| To record standard requisitions | |
| 3. Material in Process | \$ 77.00 |
| Material Consumption Variation | \$ 77.00 |
| To record additional requisitions | |
| 4. Labor in Process | \$2,080.00 |
| Standard Labor | \$2,080.00 |
| To record standard payroll | |
| 5. Burden in Process | \$1,040.00 |
| Standard Burden Distribution | \$1,040.00 |
| To record standard burden at 50 per cent of productive labor | |

The next step is to adjust the standard amounts just recorded to actual. This is done by means of percentages ascertained as follows. Material invoices are priced at both standard and actual. Some advocate the use of requisitions as the basis rather than the invoices, but this seems more cumbersome because of the additional number involved. Labor time cards are figured at both standard and actual. Estimated burden is compared with actual burden for the period.

In this manner, three percentages giving the relationship of actual to standard are obtained and permit of the desired adjustment of the cost records. This information also furnishes the data for sales quotations in accordance with current trends in manufacturing costs. The three schedules following indicate in detail the proper procedure. It will be noted in connection with material that standard requisitions are issued and that special requisitions are needed to obtain additional material. Thus an easy method of checking material consumption is obtained and excess spoilage or waste becomes readily apparent. No departmental burden records are kept so that the actual burden has been apportioned on the same basis as the original estimate in the cost variation analysis to appear later. Therefore, in Schedule III the percentage which actual burden bears to standard is expressed in one percentage applicable to both departments.

Adjustments of Standards to Actual

Schedule I

<i>Material Adjustment</i>	<i>Actual</i>	<i>Standard</i>	<i>Pct.</i>
Inventory	\$12,000.00	\$12,500.00	96.
January Purchases	2,000.00	2,100.00	95.24
Total	\$14,000.00	\$14,600.00	95.89
Work in Process—Inventory, Dept. 1	\$ 1,910.00	\$ 1,820.00	104.95
Requisitions	1,735.61	1,810.00	95.89
Total	\$ 3,645.61	\$ 3,630.00	100.43
Work in Process—Inventory, Dept. 2	\$ 1,140.00	\$ 1,270.00	89.76
Requisitions	685.61	715.00	95.89
Transfer from Dept. 1	2,314.91	2,305.00	100.43
Total	\$ 4,140.52	\$ 4,290.00	96.52

Standard Cost Problems

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Finished Goods Inventory	\$ 3,710.00	\$ 3,386.00	109.57
Transfer from Dept. 2	2,799.08	2,900.00	96.52
Total	\$ 6,509.08	\$ 6,286.00	103.55
Cost of Sales	\$ 2,795.85	\$ 2,700.00	103.55

Schedule II

<i>Labor Adjustment</i>	<i>Actual</i>	<i>Standard</i>	<i>Pct.</i>
Work in Process—Inventory, Dept. 1	\$ 1,840.00	\$ 1,520.00	121.05
January Payroll	1,960.00	2,080.00	94.23
Total	\$ 3,800.00	\$ 3,600.00	105.56
Work in Process—Inventory, Dept. 2	\$ 1,090.00	\$ 1,220.00	89.34
January Payroll	1,534.00	1,520.00	100.92
Transfer from Dept. 1	2,934.57	2,780.00	105.56
Total	\$ 5,558.57	\$ 5,520.00	100.69
Finished Goods Inventory	\$ 5,292.00	\$ 5,076.00	104.26
Transfer from Dept. 2	4,430.36	4,400.00	100.69
Total	\$ 9,722.36	\$ 9,476.00	102.60
Cost of Sales	\$ 4,309.20	\$ 4,200.00	102.60

Schedule III

<i>Burden Adjustment</i>	<i>Month</i>		<i>Annual</i>	<i>Pct.</i>
	<i>Actual</i>	<i>Standard</i>	<i>Standard</i>	
Indirect Labor	\$ 300.00	\$ 333.33	\$ 4,000.00	
Taxes	150.00	150.00	1,800.00	
Depreciation	161.33	161.33	1,936.00	
Insurance	52.50	52.50	630.00	
Repairs	50.00	67.50	810.00	
Heat	265.00	100.00	1,200.00	
Light	18.00	15.00	180.00	
Power	165.00	150.00	1,800.00	
Factory Supplies	95.00	75.00	900.00	
Tools Used	35.00	51.67	620.00	
Superintendence	450.00	500.00	6,000.00	
Watchman	102.30	100.00	1,200.00	
Cost Office Salaries	315.00	325.00	3,900.00	
	\$2,159.13	\$2,081.33	\$24,976.00	103.74

	<i>Actual</i>	<i>Standard</i>	<i>Pct.</i>
Work in Process—Inventory, Dept. 1	\$ 950.00	\$ 760.00	125.00
January Burden	1,078.90	1,040.00	103.74
Total	\$ 2,028.90	\$ 1,800.00	112.72
Work in Process—Inventory, Dept. 2	\$ 570.00	\$ 610.00	93.44
January Burden	788.42	760.00	103.74
Transfer from Dept. 1	1,566.81	1,390.00	112.72
Total	\$ 2,925.23	\$ 2,760.00	105.99
Finished Goods Inventory	\$ 2,798.00	\$ 2,538.00	110.25
Transfer from Dept. 2	2,331.78	2,200.00	105.99
Total	\$ 5,129.78	\$ 4,738.00	108.27
Cost of Sales	\$ 2,273.67	\$ 2,100.00	108.27

From the instructional standpoint it is perhaps desirable to next explain the cost variation analysis by actually working through Department 1 with the class. This will prove of additional assistance in clarifying the journal entries necessary to adjust standard to actual. It is practically impossible to explain this schedule (IV) in an article of this length. The instructor should consult "Management's Handbook" for detailed explanation and treatment. The columns of major importance are, of course, "Actual Quantities at Actual Prices," "Actual Quantities at Standard Prices," and "Standard Value of Months' Production." The other columns merely serve to explain burden variation in greater detail. After getting the net variation, until one becomes thoroughly familiar with the procedure, it will be necessary to refer constantly to the chart showing the application of the formulae in order to complete the analysis.

Upon completion of this step, the factory adjustments can be readily explained and should be made to furnish, in summary form, the same information given on the analysis sheet. This at the same time corrects the standard values to the actual values as determined in Schedules I to III, inclusive. The cost procedure may thus be summarized as follows:

1. Recording of standard quantities at standard costs.
2. Adjusting to actual quantities at standard costs.
3. Adjusting to actual quantities at actual costs.

In this manner both efficiency and price variations become apparent and the management is furnished with information which enables it to profitably direct its efforts.

Additional Journal Entries

6. Standard Raw Material	\$1,735.61	
Actual Raw Material		\$1,735.61
To record total requisitions at actual price. (See Schedule I.)		
7. Net Material Variation	2.61	
Standard Raw Material		2.61
To set up the net variation between standard and actual costs		
8. Material Consumption Variation	77.00	
Net Material Variation		77.00
To close the consumption variation		
9. Net Material Variation	74.39	
Material Price Variation		74.39
To establish the price variation		
10. Material Price Variation	74.39	
Material in Process		74.39
To adjust Material in Process to actual		
11. Labor in Process	160.00	
Labor Efficiency Variation		160.00
To adjust to actual hours at standard rates		
12. Standard Labor	1,960.00	
Actual Labor		1,960.00
To record actual payroll. (See Schedule II.)		
13. Standard Labor	120.00	
Net Labor Variation		120.00
To set up the net variation		
14. Labor Efficiency Variation	160.00	
Net Labor Variation		160.00
To close out the efficiency variation		
15. Net Labor Variation	280.00	
Labor Rate Variation		280.00
To establish the rate variation		
16. Labor Rate Variation	280.00	
Labor in Process		280.00
To adjust Labor in Process to actual		
17. Actual Burden Distribution	1,189.84	
Standard Burden Amount		1,189.84
To set up the estimated burden. This entry might well have been the first in connection with burden as it is the predetermined budget amount which must be checked for accuracy of amount and also for absorption.		

Schedule IV

Department 1

	A	B	B ₁	C	D	E	H	
	Monthly Standard Costs							
Department Hours	Act. at Actual	Act. at Stand.	Stand. Staff	Hours in Possible Stand. No.	Possible Act. No.	For Hours Act. Work.	Stand. We. Prod.	Net Ins. or Decr.
Ratio			101.9179	5936	5852	5600	89143	
p Materials	1735.61	1810.00		1906.67	----	----	1733.00	2.81s
p Productive Labor	1960.00	2240.00		2333.33	----	----	2080.00	180.00
d Indirect Labor	225.00	225.00		280.00	246.45	235.85	222.86	2.14s
b Taxes	100.00	100.00		100.00	98.58	94.34	89.14	10.56s
b Depreciation	101.92	101.92		101.92	100.47	96.15	90.95	11.07s
b Insurance	35.00	35.00		35.00	34.50	33.02	31.20	3.80s
f Repairs	33.02	33.02		44.58	----	----	39.74	6.72s
f Heat (5/6 of Standard Price)	154.59	185.52		58.33	----	----	52.00	102.52s
f Light	12.00	12.00		10.00	----	----	8.91	3.09s
f Power (2778 K.W. Hrs.)	91.67	83.33		83.33	----	----	74.28	17.39s
p Factory Supplies	52.77	52.77		41.67	----	----	37.15	15.62s
p Tools Used	27.09	27.09		40.00	----	----	35.66	8.57s
b Superintendence	196.00	216.67		216.67	213.59	204.41	193.15	1.98s
e Watchman	68.20	67.95	67.95	66.67	65.72	62.90	59.43	8.77s
e Cost Office Salaries	137.31	137.31		141.67	139.66	133.65	126.29	11.08s
Total - Burden	1233.57	1277.58	67.95	1189.84			1060.66	172.91s
Total - Material	1735.61	1810.00		1906.67			1733.00	2.81s
Total - Labor	1960.00	2240.00		2333.33			2080.00	180.00
Total of all Elements	4929.18	5327.58	67.95	5429.84			4873.69	56.82s

Schedule V

Department 2

	A	B	B ₁	C	D	E	H	
	Monthly Standard Costs							
Department Hours	Act. at Actual	Act. at Stand.	Stand. Staff	Hours in Possible Stand. No.	Possible Act. No.	For Hours Act. Work.	Stand. We. Prod.	Net Ins. or Decr.
Ratio			101.9179	3180	3135	2960	.912	
p Materials	685.61	715.00		666.67	----	----	620.00	65.51s
p Productive Labor	1534.00	1475.00		1666.67	----	----	1520.00	14.00s
d Indirect Labor	75.00	75.00		83.33	82.15	77.31	75.99	.99s
b Taxes	50.00	50.00		50.00	49.29	46.39	45.50	4.40s
b Depreciation	59.41	59.41		59.41	58.57	55.11	54.19	5.22s
b Insurance	17.50	17.50		17.50	17.25	16.23	15.96	1.54s
f Repairs	16.98	16.99		22.92	----	----	20.90	3.92s
f Heat (5/6 of Standard Price)	110.41	132.49		41.67	----	----	38.00	72.49s
f Light	6.00	6.00		5.00	----	----	4.56	1.44s
f Power (2222 K.W. Hrs.)	73.33	66.66		66.67	----	----	60.80	12.53s
p Factory Supplies	42.23	42.23		33.33	----	----	30.40	11.83s
p Tools Used	7.91	7.91		11.67	----	----	10.64	2.73s
b Superintendence	285.00	283.33		283.33	279.31	262.85	258.39	3.39s
e Watchman	34.10	33.27	33.27	33.33	32.96	30.22	30.40	3.79s
e Cost Office Salaries	177.69	177.69		183.33	180.71	170.09	167.19	10.60s
Total - Burden	925.56	969.17	33.27	891.49			813.02	112.54s
Total - Material	685.61	715.00		666.67			620.00	65.61s
Total - Labor	1534.00	1475.00		1666.67			1520.00	14.00s
Total of all Elements	3145.17	3159.17	33.27	3224.83			2954.70	192.17s

Cost Variation Analysis

[illegible]

Cost Variation Analysis

Calendar	Date Time	Produc. Eff.	Labor		Material		Distrib.	Expense		Salaries	
			Rates	Time	Price	Consump.	Expense	Price	Consump.	Rate	Staff
					29.39	95.00*					
	H-E	1.38*	59.00*	46.00							
E-D	H-E		E-B	2.31							
.71*	2.90*	.79*									
E-D	H-E										
.94*	3.46*	.92*									
E-D	H-E										
.25*	1.08*	.97*									
						N-A	3.92				
						B-A					
						N-A		22.08	94.49*		
							1.44*				
						B-A					
				B-A	H-B			H-B			
				B-A	H-B	11.25*	6.67*	5.86*			
						2.73					
E-I	H-E									C-B	
4.02*	16.46*	4.46*								28.33	
E-I	H-E									B-A	
1.11*	1.94*	.52*								B-A	
E-I	H-E										.15*
	10.68*	2.89*	D-B	3.04							
6.93*	36.43*	11.17*		5.35	29.39	95.00*	2.48	15.41	100.35*	88.20	
			59.00*	45.00							
6.33*	36.43*	11.17*	59.00*	50.36	29.39	104.10*	2.48	15.41	100.35*	88.20	

18.	Burden in Process	216.92	
	Burden Distribution Variation		216.92
	To adjust to actual at standard rates		
19.	Standard Burden Distribution	1,078.90	
	Actual Burden Distribution		1,078.90
	To record actual burden distribution. (See Schedule III.)		
20.	Rate Variation	20.66	
	Standard Burden Distribution		20.66
	To adjust for the discrepancy in use of 50% rate. Correct rate is 50.99%. This accounts for the difference between 106.66 and the \$1,040.00 distributed.		
21.	Standard Burden Amount	1,233.57	
	Actual Burden Amount		1,233.57
	To record actual amount of burden		
22.	Net Burden Variation	172.91	
	Standard Burden Distribution		18.24
	Actual Burden Distribution		110.94
	Standard Burden Amount		43.73
	To close the above accounts and establish the net variation		
23.	Burden Distribution Variation	216.92	
	Net Burden Variation		216.92
	To close the distribution variation account		
24.	Net Burden Variation	44.01	
	Burden Amount Variation		44.01
	To set up the variation due to change in price levels on burden items		
25.	Burden in Process	20.66	
	Rate Variation		20.66
	To close the rate variation account		
26.	Burden Amount Variation	44.01	
	Burden in Process		44.01
	To close the amount variation account		
27.	Undistributed Burden	154.67	
	Burden in Process		154.67
	To close the Undistributed Burden account rep- resenting the difference between the actual burden of \$1,233.57 and the amount distributed in Schedule III, or \$1,078.90. This also serves to adjust the Burden in Process account in ac- cordance with Schedule III.		

28.	Material in Process—Dept. 2	2,305.00	
	Labor in Process—Dept. 2	2,780.00	
	Burden in Process—Dept. 2	1,390.00	
	Material in Process—Dept. 1		2,305.00
	Labor in Process—Dept. 1		2,780.00
	Burden in Process—Dept. 1		1,390.00
	To record the transfers to Department 2 at standard		
29.	Material in Process—Dept. 2	9.91	
	Labor in Process—Dept. 2	154.57	
	Burden in Process—Dept. 2	176.81	
	Material in Process—Dept. 1		9.91
	Labor in Process—Dept. 1		154.57
	Burden in Process—Dept. 1		176.81
	To adjust the transfers to Department 2 from standard to actual per Schedules I to III, inclusive		
	Closing Entries—Department 1		
30.	Actual Raw Material	1,735.61	
	Actual Labor	1,960.00	
	Actual Burden Amount	1,233.57	
	Burden Amount Variation		154.67
	Manufacturing—Dept. 1		4,774.51
	To close the various expense accounts		
31.	Manufacturing—Dept. 1	6,816.29	
	Manufacturing—Dept. 2		6,816.29
	To close the amounts representing transfers from goods in process in Department 1 to goods in process in Department 2		

The burden entries given above are the most difficult to follow, and as there are several possible deviations from the above treatment the instructor may simplify the procedure and not endeavor to show on the books of account themselves data similar to those appearing on the cost variation analysis. The remaining information completes the solution.

Trial Balance—Factory Ledger—After Closing

Manufacturing	\$ 2,658.22
Material in Process	\$ 1,330.70
Labor in Process	865.43
Burden in Process	462.09
Manufacturing	15,045.60
Material in Process	1,341.44
Labor in Process	1,128.21
Burden in Process	593.45

Material in Finished Goods	3,713.23
Labor in Finished Goods	5,413.16
Burden in Finished Goods	2,856.11

	\$17,703.82	\$17,703.82
--	-------------	-------------

Cost Variation Analysis for Dept. 2

(See Schedule V.)

Summary of Cost Variation Analysis

	Dept. 1	Dept. 2
Material:		
Material Consumption	\$ 77.00*	\$ 95.00*
Material Price	74.39	29.39
	————\$ 2.61*	————\$ 65.61*
Labor:		
Labor Rates	\$280.00	\$ 59.00*
Labor Efficiency	160.00*	45.00
	————\$120.00	————\$ 14.00*
Burden:		
Calendar Variation	\$ 8.68*	\$ 6.93*
Idle Time	28.05*	36.43*
Productive Efficiency	47.40*	11.17*
Non-Productive Labor Time	13.20	5.35
Indirect Material Consumption	7.05*	9.10*
Distributive Expense	3.63	2.48
Expense Prices	22.59	15.41
Expense Consumption	142.57*	100.35*
Salary Rates	21.42	28.20
	————	————
Net Burden Variation	\$172.91*	\$112.54*
	————	————
Total Additional Cost—January	\$ 55.52*	\$192.15*

*Indicates red figures.

Interpretation of Summary

The calendar variation is due to the holiday falling in January. Increased fuel consumption accounts for \$133.52 of the increase in expense consumption for January. This increase is normal for January and will be offset in summer months.

MANDALAY MANUFACTURING COMPANY

Operating Statement—January 31

Sales	\$13,500.00
Raw Material Inventory	\$12,000.00
Purchases	2,000.00
	————
	\$14,000.00
Inventory—Closing	11,578.78
	————

Raw Material Used	\$ 2,421.22	
Productive Labor	3,494.00	
Power	165.00	
Repairs	50.00	
Light	18.00	
Indirect Labor	300.00	
Superintendence	450.00	
Watchman	102.30	
Cost Office Salaries	315.00	
Taxes	150.00	
Depreciation	161.33	
Insurance	52.50	
Heat	265.00	
Tools Used	35.00	
Factory Supplies Used	95.00	
	<hr/>	
Total Manufacturing Cost	\$ 8,074.35	
Work in Process—Opening	\$ 7,500.00	
Work in Process—Closing	5,721.32	
	<hr/>	1,778.68
		<hr/>
Cost of Goods Made	\$ 9,853.03	
Finished Goods—Closing	\$11,982.50	
Finished Goods—Opening	11,800.00	
	<hr/>	182.50
		<hr/>
Cost of Goods Sold		9,670.53
		<hr/>
Gross Profit		\$ 3,829.47
Sales Expense	\$ 2,170.00	
Administrative Expense	1,250.00	
Depreciation on Furniture	10.00	
Interest Paid	60.00	
	<hr/>	3,490.00
		<hr/>
Net Profit		\$ 339.47

MANDALAY MANUFACTURING COMPANY
Balance Sheet—January 31

Assets

Cash	\$ 4,802.00
Petty Cash	500.00
Accounts Receivable	14,525.00
Raw Material	11,578.78
Goods in Process	5,721.32
Finished Goods	11,982.50
Land	4,000.00

Buildings	\$21,000.00	
Less Reserve for Depreciation	977.50	
		20,022.50
Machinery	\$34,520.00	
Less Reserve for Depreciation	7,243.83	
		27,276.17
Small Tools		3,205.00
Office Furniture	\$ 1,200.00	
Less Reserve for Depreciation	480.00	
		720.00
Unexpired Insurance		1,437.50
Factory Supplies Inventory		2,362.00
Fuel Inventory		110.00
Total Assets		\$108,242.77

Liabilities

Accounts Payable	\$ 6,798.00	
Accrued Taxes	150.00	
Accrued Wages	1,518.30	
Notes Payable	10,000.00	
Total Liabilities		\$ 18,466.30

Proprietary Interest

Capital Stock	\$75,000.00	
Surplus	\$14,567.00	
Profit	339.47	
	\$14,906.47	
Excess of Tax over Reserve	130.00	
		14,776.47
Total Proprietary Interest		\$ 89,776.47

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TWO FABLES OF BOOKKEEPING

By A. C. LITTLETON, *University of Illinois*

I. THE LENDER AND THE BORROWER*

I do not pretend to be able either to present matters to you just as they happened, or to give you an idea of the real course of those very complex events which are necessary to an understanding of the ups and downs of bookkeeping progress. All that I am able to do is to give you a sort of outline wholly from my own imagination.

We are going to discuss matters of long ago and tell you of a period when for the first time two men made an agreement to lend money, and when each of them wanted to keep a written reminder of that loan And in order to keep my characters in the abstract, while at the same time helping you to follow my reasoning, I shall designate them by the simple letters of the alphabet.

One day A obtained from B the loan of a certain sum, and each of them made a note of it either upon a tablet of soft clay, a leather parchment, a sheet of papyrus, or a board coated with wax, according to the period and place in which you choose to locate the event. B wrote: A owes me such a sum; and A, on his side, wrote: B has a claim upon me (*a sur moi une créance*) of such a sum.

Later, whenever A repaid B, B wrote upon the face of his first memorandum: A has paid back on such a date such a sum, at such another date such another sum, and so on; and A wrote: B has received from me on such a date such a sum, etc. We can imagine

*Part I is an original translation (by permission of author and publisher) of a portion of a paper entitled "La Partie Double avant Paciolo," by M. Albert Dupont, formerly Inspector of Finance, published as a brochure by the *Société de Comptabilité de France* in December, 1925. The titles used above are phrased for the occasion, and were not a part of the original paper.

The imaginative, or "fable," part of this French paper seemed so strikingly similar in theme to an earlier imaginative flight of my own that I was tempted to set the two side by side so that they might be, in a measure, corroboration for each other. Part II was written two or three years ago to show to an advanced class why double-entry is usually called a development rather than an invention. It is now brought out of its classroom sanctuary only because it has found such eminent companionship.

that eventually A and B made between themselves, according to their necessities and mutual opportunities, quite a series of payments, now of one sort, now of another. And you can understand that the rudimentary ideas of debit and credit would quickly become very clear and very familiar to them, at least in their earlier forms, and that those ideas could be added to, or even substituted for, the ones about loans and repayments which men had conceived at first.

But one day a thing happened which had far-reaching consequences: A and B could not agree. After much useless argument they decided to find a third person in their tribe who possessed a high reputation for wisdom and to leave the settlement of their differences to him. The latter got them into agreement, it does not matter how, and reestablished an accord between the two accounts which had been presented to him.

This was an event of great importance. A and B, being satisfied with the intervention of the arbitrator chosen by them, and desiring to avoid the return of similar difficulties, decided that they would enter all of their transactions in his presence, and, what is more, that they would deliver to him the accounts kept up to that time by themselves and entrust him with the continuation of the records. We will designate the man I have called the arbitrator by the letter T, because it is the initial of the word *témoin* (witness).

Do you see how this quite natural series of events put into the hands of T the characteristic elements of real double-entry bookkeeping? This man, intelligent and observant by hypothesis, could not have been long in finding out that every transaction gave rise to a double recording, that every sum written in the debit of one of the two accounts figured also in the credit of the other, and that as a consequence, the total of the debits were equal to the total of the credits, and finally, that the debit balance of one of the two accounts was in reality, and of necessity, equal to the credit balance of the other. The principles of double-entry were thus clearly formulated at first without the men who conceived them comprehending their significance.

Had affairs remained a long time in this condition, double-entry would have run a strong risk of being a still-born science. T, in fact, was unable to see that the account of A kept by B, and the

account of B kept by A were in reality the same identical thing, and that they formed a useless repetition. T ought to have considered how he could save half of the work by keeping only one of those two accounts, since at that time he was charged with doing the work and might therefore have been actuated by a sentiment which you are at liberty to call either inexcusable laziness or a laudable spirit of simplification. Though but recently brought into the world, it would seem that double-entry bookkeeping was barely alive:

Without doubt it was overcome more than once. In order to rekindle its ashes and infuse into them a less precarious life, a new event was necessary. Here is what I imagine it was.

A, finding himself again in need of money, found B also financially embarrassed and more inclined to want what was owed to him than to make new advances. So A, without urging B further, went to find C, whom he took before T and in the presence of the latter received from him the sum needed. At the same time, A requested T to write in the debit of his account the sum that he was going to receive; and C requested T to open an account for him also and to place to his credit the sum he was going to turn over.

This done, T noticed that A's former account between himself and B still expressed correctly the situation for the former after the entry of the new debit, but did not any longer reflect the situation of B. He understood that, strictly speaking, if a single account was sufficient to express the situation between two persons, two accounts would not be sufficient to express the relations of three people, but that it would be necessary to open an account for each one of them.

What did he do? He looked up in his dead file the account of B which he had neglected to keep after a certain time and put it in the current file. In this way he found himself in possession of an account with each one of his clients, in which was represented the details of all of the transactions between each one and the two others, and in which the balance expressed the receivable or payable relationship existing between the person named in the account title and the parties named in the titles of the other accounts.

In reflecting upon these three accounts, T did not need to put forth any great mental effort to observe that every transaction gave rise to two entries of the same amount, the one to the debit of one account, the other to the credit of another account; that as a result

the total debits were equal to the total credits, and that the debit balances were also in equilibrium.

At the beginning of my story, I showed the clients of T coming at him two by two, lender and borrower. It is natural to suppose that, little by little, he became their agent, not only to authenticate and note down their agreements, but even to put them in touch with each other. Some one, needing money, would come to him to ask if he did not know a lender. T would name such person, and the two would come to terms, then return to T. Or in a period of prosperity it might happen this way: a man, call him R if you wish, the initial letter of the word *riche* (wealthy) came to T carrying a sack of money for which he had no employment and asked T to take it now and return it later as there might be need. After having made full provision for the question of interest which was to run only when a borrower should have been found, T accepted the deposit and put it safely away. It was an important decision as he quickly perceived, for when he had opened an account for R and had made it creditor for the sum received, he noticed that the contra-entry to a debit was lacking. As long as T kept to his role of witness, the laws of double-entry were naturally observed. But on the day when he himself happened to receive a deposit of money, things went to pieces and his accounting went lame.

What was to be done in the emergency? Combine the account R with the others and renounce forever the equations and tests of double-entry? That is without doubt what would have happened if T had not known by long practice the value of the guaranties offered by the other method and taken heed. Therefore he preferred provisionally to class the account of R apart in such a manner as to preserve the equilibrium of the debits and credits between the remaining accounts of A, B, C, etc., to the exclusion of the single account R, while seeking a borrower for the fund involved. But the first one who presented himself had need for only a fraction of the amount deposited by R, so that the new debit was not equal to the credit of R, and now instead of a single account excluded from the equation, there were two. Then the other individual lenders and borrowers presented themselves and one thus arrived at a state of things where T kept two independent systems of accounts: one subject to the laws of double-entry, the other not.

You will clearly understand that because of the circumstances, the second system tended little by little to overcome the first.

Here was a grave danger, for the tests which did not embrace the majority of the accounts would naturally lose much of their utility and their interest, and would run the risk of finally being neglected completely.

The remedy, as often happens, grew out of the excess of the evil. T finally tired of the dull business of receiving and delivering so much money which he must count and weigh most carefully, and resolved to entrust this to one of his slaves. We may call this one N, the initial of the word *numéraire* (cash).

Now one day as T observed N in the exercise of his functions, he had a flash of sudden inspiration. What was here before his eyes? A man who received money from another man or paid money out to another. Many a time had he assisted in such a scene when lender and borrower in his presence had performed their mutual payments. N did not do a thing but what he had seen them do. In opening an account for N, and in keeping it in just the same way as the accounts of A, B, or C, T perceived clearly that he was able to reestablish in one stroke the disrupted equilibrium of his whole bookkeeping system. He resolved to do it then and there. Double-entry was saved.

It was not, perhaps, a stroke of genius; but it was great progress. The new account did not merely furnish a contra-entry for the debits and credits which without it would be left dangling in the air; it had the more remarkable property of representing in its balance exactly the sum entrusted to N. It permitted, therefore, a check upon the honesty of the latter.

Little by little this peculiar property of the balance of N's account changed the basic notion of the account itself. Soon it was no longer looked upon as the account of a definite person to be designated by a proper name, but was regarded as the account of the function itself; it became the account of Cash, just as we still conceive it to-day. . . .

You have understood, I am sure, that I have not intended to indicate a flesh and blood man by the initial T. Had he lived the years of Methuselah, he would not have been able to assist in the transformations which I have been describing, so slow was the progress of civilization in ancient times. T represents a succession of people, who, in one age after another, and no doubt in one country after another, fulfilled this increasingly complex mission, and so transmitted a tradition.

II. THE CRAFTY LOMBARD*

On a certain day in the early 13th century an old Lombard money-changer is seated at his table in a little stall in the market place of Florence,† turning over in his mind the transactions of the previous day. A Florentine, Antonio, by name, enters the booth with a companion and lays a bag of coins upon the table before the old man.

ANTONIO: Lombard, I go presently upon a journey to Venice and would leave these two hundred ducats in your hands for safe keeping. Do you accept them and in the presence of this witness, Ludovico, pledge to hold them in my name and return them to me at my pleasure?

LOMBARD: Yes, I do that for noble gentlemen sometimes. Yes, yes. For a small fee I will do as you say. It is a great risk in these unsettled times for so small a fee as six denari. But I will do it. I will give you my pledge. (*Turning to Ludovico*) I take you to witness, noble sir, that I say Antonio shall have two hundred ducats from me at his pleasure. See, I write it so on my tablets. (*Writes and reads*)

"Antonio shall have at his pleasure
200 ducats this day left with me
in coins—200 D."

Now it is good before all the judges according to very ancient rule and custom. You have seen me write the pledge. Is it enough?

ANTONIO: Enough. I know the forms you think you have to follow. But look you, Lombard, if you give me not two hundred ducats at my pleasure, you shall feel the weight of my sword, so let that thought stand in mind along with your "ancient customs." (*Exit*)

LOMBARD: So be it. (*Aside*) He that keeps both sword and tongue in check fares best in the end. (*Enter Francisco, a young nobleman of Florence*) Ah! How may I serve your lordship?

FRANCISCO: Lombard, I have a present need for a hundred ducats. Have you that much in hand?

LOMBARD: Barely, barely, my lord. Only a few denari over. A hundred ducats! That is much money! You would give it back soon? Give it to me at my pleasure, eh? With fair interest, eh?

FRANCISCO: Yes, yes, of course. But this is only talk; give me the money.

LOMBARD: At once, at once. (*Calls*) Simione! (*To Francisco*) A witness, just a witness. Here is the money in a bag. See, I write down what you pledge. (*Writes and reads*)

*A fanciful dialogue designed to suggest the way financial transactions may have been entered into in the Middle Ages, and to illustrate the peculiar phraseology of early bookkeeping entries.

†A graphic description of the setting for such a scene may be found in the chapter on the money-changers gild in "The Gilds of Florence," Staley.

"Francisco shall give* 100 ducats
to me at my pleasure for money
this day loaned to him—100 D."

That is what you pledge, is it not, my lord? You witness, Simlione.
It is according to rule and custom.

FRANCISCO: Yes, yes, that is what I pledge. Give me the money.

LOMBARD: In this bag—except for the interest—good, full count; good, gold coins. Come again, my lord. (*Exit F.*) It is the third time since his father died. Well, a ship of his may yet win through. (*Exit*)

Some months elapse, during which time Antonio has made his journey to Venice and returned. Again the Lombard is seated at his table in the market place, and to him come Antonio and Francisco.

ANTONIO: You lately pledged that I should have two hundred ducats at my pleasure. Give them to me now.

LOMBARD: As you will; just as you wish. Yes, surely I pledged; I remember it well. Besides it is written on the tablets. But you find me now a little short. So much to Benevetto yesterday on his venture in spices. (*Craftily*) If only my lord Francisco could give me as he promised some of the money he had of me in coins. Why then, Antonio—

FRANCISCO: (*Interrupting*) Is it not enough that you send your cringing messenger three times to whisper in my ear and set my guests a-chatter? You money-biting long-beard out of—

ANTONIO: (*Quieting him*) My lord! Hush, my lord! (*To the Lombard*) Give me the money as you pledged. Let his lordship rest; you will be paid. I will myself see to it if necessary.

LOMBARD: Ah, that's different, that's different. Your pardon, my lord, pardon. (*To Antonio, insinuatingly*) You do now ask this money perhaps to pay upon the sum my lord is pledged to give me at my pleasure?

FRANCISCO: (*In a rage*) Your accursed avarice will—

*It is only natural to expect such early memoranda to be couched substantially in the words of the conversation which gave rise to the transaction and the agreement, because the art of abbreviating the record of a transaction is a product of long evolution and could hardly be expected to appear at the beginning of men's attempts to record financial transactions.

The beginning of traditional phrases (later to become technical terms) are well illustrated by the words "shall give" (he owes, i. e., debit) and "shall have" (he has a claim, i. e., credit) which are found in one form or another, in practically all of the old ledger entries shown in the histories. With quite understandable variations in spelling, even within one language, the Latin *debet dare* became in Italian *dee dare*, in German *soll geben*, and (probably) in French *doit rendre*; the Latin *debet habere* became *dee avere* in Italian, *soll haben* in German, and (probably) *doit avoir* in French. Vestiges of these phrases are still preserved in the ledger headings which correspond to our abbreviations, "Dr." and Cr.," the Italian being *dare* and *avere*, respectively, the German, *soll* and *haben*, and the French, *doit* and *avoir*.

ANTONIO: (*Again interrupting*) My lord! Step here by the window. You will— (*They confer in whispers apart and return to the table*)—It will be best. Let me do the talking.

(*To the Lombard*) I all but lose my patience, too. You seize my very words and turn them out of their meaning. I came not to pay you for my lord Francisco's pledge, but to have my own money of you. Yet—yet, I think I *will* discharge him to you—for my own reasons, mark you, Lombard, not because it seems to suit *your* purpose.

LOMBARD: Yes, yes, surely. It shall be done then. You will stand in his stead—all according to the ancient rules and customs. Do you, Antonio, discharge me of the two hundred ducats owing to you? Do you agree they shall be held at my lord Francisco's pleasure instead?

ANTONIO: That's my intention, Lombard.

LOMBARD: Yes, yes, I only state it in careful language so there will be no mistake—no mistake. Yes. And I then in turn do here discharge my lord Francisco of two hundred of the ducats he has pledged to give me. Do you understand it thus, my lord?

FRANCISCO: I am discharged of two hundred ducats. Yes—but little thanks to you.

ANTONIO: Put this matter on the tablets before we leave.

LOMBARD: I was about to do so. (*Writes and reads*)

"Antonio shall give to me 200 ducats this day placed at the pleasure of my lord Francisco—200 D."

You understand, Antonio, that I write, "you shall give me" as if I owed you nothing, because this writing only cancels the former writing wherein I pledged that you should have two hundred ducats of me. That is right?

ANTONIO: I understand; but have done.

LOMBARD: In a moment, in just one moment more. The ancient customs must be followed. Now I write again. (*Writes and reads*)

"My lord Francisco shall have of me 200 ducats placed this day at his pleasure by Antonio—200 D."

That is clear, is it not, my lord? You shall have two hundred ducats as I have written, *if you are not already pledged to give me that much*. As it is, this money which by this writing you shall have is only an offset against what you pledge to give me on the former writings.* That is it, is it not?

FRANCISCO: (*A little bewildered*) That is what you meant, Antonio? It

*The entries previously shown stood alone, each one a separate memorandum. Here the Lombard has worked out a *double entry*.

The seemingly cumbersome, roundabout way of analyzing the transaction and of framing the agreement in words may have its base in old

is all right? (*He nods*) Well, if you say so. All right, Lombard. But Antonio, the present need. You know, I spoke to you about it but to-day.

ANTONIO: Of that later. We have finished here. Come. (*They retire toward the door, speaking privately*) There is another Lombard a short way off who holds you in high regard. He—(*They leave*)

LOMBARD: Good! I still have Antonio's ducats. That is good! And that pig of a Francisco is partly off my mind. Hah! did I not work it out well! Antonio had thought to place his ducats in that rascal's hands for spending. But I stopped that. Hah—What had he just now in mind, I wonder—I wonder—(*Exits*)

Roman practices, a tradition of which may conceivably have been preserved in local customs even in the dark ages.

There was in the old Roman law, MacLeod tells us in his "Theory of Credit," a very definite procedure of contracting a binding debt and a set form of preliminary conversation. The lender said, "I have weighed out and given to you" such a sum, and the borrower said, "You have weighed and given out" such a sum. After which the creditor made a formal entry of the loan in his tablets (ledger) and the debtor did likewise on his tablets. Without this formality carefully carried through in detail the debt would not stand in court.

There was an equally definite procedure for transferring a debt to a third party. The creditor and debtor and transferee met together and the creditor, with the assent of the debtor, transferred his right to the transferee by word of mouth. The creditor by word of mouth released the debtor from his debt, and the transferee also by word of mouth released the creditor from his debt to him.

It would not be surprising if the essence of these practices survived into the medieval times and provided the framework for analyzing the early financial transactions. Indeed the historian Jannet, in "Le Credit Populaire et les Banques en Italie," definitely says that the organization of the greater commerce and of banking as it existed in the Roman Empire survived the invasion of the barbarians and persisted during the first part of the Middle Ages.

THE ECONOMIC ACCOUNTING APPROACH

By C. D. LAZENBY, *Head of Commercial Department,
Jefferson High School, Portland, Ore.*

The term, "bookkeeping approach," is a misnomer. Much more is involved than the term implies. It should be called the accounting foundation, without which no real worthwhile accounting superstructure can ever be built. The subject of *bookkeeping approach* really resolves itself into a question of *bookkeeping method*. Bookkeeping methods and pedagogy constitute the "open forum" in commercial work to-day. There is an increasing feeling among bookkeeping teachers that "all is not well in educational Egypt." Many of the most progressive teachers are realizing that we have never got to first base in the development of a sound bookkeeping pedagogy.

THE EDUCATIONAL STATUS OF BOOKKEEPING

Bookkeeping is to-day an acknowledged factor in secondary education. It has acquired its present permanent footing in the face of determined criticism and opposition on the part of many educators. And very few subjects have in so short a time obtained such a firm and universal footing in high school curricula.

In the beginning, the high school inherited the textbooks, the teachers, and the methods of the business college. Measured by present educational standards, all of these were extremely inadequate.

Thanks to a number of conditions, the teaching element has greatly improved. We have our normal schools, our universities, and our colleges. School boards have gradually increased commercial teachers' requirements until to-day, in most of the larger systems, a college degree is a prerequisite. With these improvements in teaching requirements, there has come a gradual (though limited) improvement in teaching methods. However, no water rises higher than its fountain head; and, in the main, no teacher can produce methods much in advance of the textbook used.

Until recently bookkeeping texts have been built and laboratory

material arranged almost entirely to meet business college requirements. Relatively speaking, bookkeeping texts have made no basic improvement in pedagogy; whatever changes have been made have been merely in the direction of refinements. But refinements never correct basic pedagogical fallacies. I am convinced that the only way we shall ever be able to give to bookkeeping real educational value is through a radical change of bookkeeping teaching methods. This, of course, means a change in the character of bookkeeping texts. Bookkeeping is young in the public schools (barely thirty years old in most high schools). It takes time to develop a sound pedagogy in any subject. Perhaps we have done as well as can be expected. However, the light is breaking, and we are just now in the dawn of a new era in methods.

A SUGGESTED DEVELOPMENT

The following is offered as a logical and effective plan of subject development—one that will give to bookkeeping the educational value it should have. The complete development should fall into four distinct parts and in the order given below:

1. Accounting Approach
The development of basic accounting and ledger relationships.
2. The Accounting Superstructure
The development of secondary accounting and ledger relationships.
3. Bookkeeping Technique and Mechanics
The development of journal and ledger technique and various labor-saving and alternate features, methods, and accounts.
4. Interpretive Accounting
The development of the interpretive ability—which is real accounting.

The first two steps constitute the real accounting *foundation*, give to bookkeeping any definite educational value it may have. Hence the present discussion really involves these stages only. Before proceeding with the details of this discussion, however, we shall make cursory comment on steps three and four.

BOOKKEEPING TECHNIQUE AND INTERPRETIVE ACCOUNTING

The purpose of part three is to develop the *vocational* aspects of bookkeeping. All bookkeeping texts to date have been largely a development of this phase of the work—bookkeeping mechanics only. However, it is a case of a building without foundation—"A house built upon the sand."

I am not, in this discussion, interested in the most effective methods for the development of bookkeeping mechanics. Most texts have already developed that phase of the subject unduly. Of course, I do not wish to be understood as belittling bookkeeping mechanics; they are extremely important. They give to pupils habits of neatness and other desirable traits. They are the part of the accounting building in which the bookkeeper lives. They are entitled to time and consideration in the teaching of the subject. However, I believe that they have been given entirely too great a proportion of the pupil's time. The result has been the acquirement of the superficial mechanics of the subject through rule-of-thumb and repetitive processes. While such a plan may develop a degree of mechanical skill, it is less than half efficient from an educational standpoint. If the pupil is first given fundamental relationships (a foundation), he will be able to acquire routine mechanics in less time than where mechanics only are stressed. Educationally speaking, if a pupil masters *accounting relationships*, he gets everything. If he fails to master accounting relationships, he gets little or nothing irrespective of how much mechanical skill he may acquire.

Part four has very high educational value, but has little or no place in a one-year high school course. It belongs to advanced high school or college work. However, there is but little question that the educational value of both parts three and four may be greatly increased where they are preceded by fundamentals. If this type of development be used, much of the present-day criticism of high school bookkeeping by colleges and universities will be materially reduced, if not entirely eliminated.

THE ACCOUNTING APPROACH

Parts one and two, the major subject of this discussion, will now be considered in turn and in detail. Part one is the real *accounting approach*; part two, the *accounting superstructure*. Together they give the fundamentals—the very foundation of accounting. Both steps are, of course, inseparable in that the complete fruition of one is impossible without the other. Each emphasizes and magnifies the other.

The Economic Background. Since we are designating our approach as the "economic approach," it will be well first to give the economic background of all accounting. We are a nation of property owners. In fact, our entire business and industrial struc-

ture is based on the *private ownership of property*. This gives rise to two primary groups of business elements, *property* and *property rights*. These groups are known under various names. The banker refers to them as *resources* and *liabilities*; some call them *assets* and *ownership*; others (among these the present writer) designate them as *assets* and *equities*. Names are not of vital importance. However, the existence of these elements in eternal equality is the most fundamental and outstanding economic and accounting fact. It gives us our fundamental equation, property equals property rights. This economic equation is the arch support of the entire accounting structure.

The idea of property is one of our most elemental economic concepts. All normal persons above three or four years of age have a very rational and satisfactory idea of property and property rights. We have already referred to the *eternal equality* of property and property rights. One class is expressed in terms of things; the other, in terms of *persons*, natural or legal. One grows out of the other; they are different phases of the same economic fact. The very existence of each is dependent on the other. Wherever shown, therefore, they must be shown (1) as related, (2) as equal. This economic relationship of equality exists independent of all book-keeping records, a fact which is of major importance. It makes the balance sheet the first of three distinct steps in a scientific accounting approach.

A Three-fold Development. *Primary concepts* can be developed initially only through the use of *primary terms*. All initial thinking must be in terms of the primary business elements themselves. This can be accomplished fully only through a three-fold development: first, the development of the *existence relationships* of business elements, as visualized in the equation or the balance sheet; second, a scientific development of *value change* in business elements in the terms of the visible arithmetical signs, plus and minus; third, the classification of value change through the scientific ledger, in which position is substituted for the visible arithmetical signs of value change.

This last can be best accomplished through a ledger of basic accounts only. This will continue to force the pupil to think (even when performing the ledger operations) in terms of primary business elements. It should be noted that this development *includes* the balance sheet, but is *much broader*. The balance sheet is in-

dispensable, but entirely inadequate. The three phases are as essential in the accounting approach as are the three sides of a triangle.

Existence Relationships—Balance Sheets. Let us now take up each of these three phases of our development briefly. We have as our first step the development of business elements in their existence relationships. It seems almost axiomatic that, if bookkeeping is the family history of business elements, a knowledge of the business elements themselves is the first requisite; and, since business elements have a related existence, these primary business relationships must be known. This phase of our development is entirely disassociated (as it should be) from all bookkeeping records. It is a development of those fundamental business and economic features and relationships which exist *independent of any and all records*.

These existence relationships must somehow be *visualized* by the pupil. We are all eye-minded. We can easily get the relationship of equality and contrast either through the equation or the balance sheet. Both are used. The equation is more mathematical in its make-up; and since the signs of equality and addition are both *visible*, if simply used, it pictures the full economic relationships more fully and more vividly. However, the balance sheet differs from the equation only in arrangement. It, too, is a *photograph* of primary business elements "in repose."

I think that many who favor the balance sheet approach, do so in ignorance of the real purpose of the balance sheet *as an approach*. They look upon the balance sheet as the final summarization of bookkeeping processes at the close of a fiscal period; it should be a photographic representation of primary elements in their existence relationships entirely independent of all records. If looked upon merely as the summarization of bookkeeping processes at the close of a fiscal period, the balance sheet approach would seem to be untenable. If looked upon as the photographic representation of existence relationships in bookkeeping elements, it seems to be the only tenable initial step.

Determination of Value Change—Journalizing. The second great step in the suggested development is the scientific unfolding of value change; a phase of accounting more important and far more difficult than the study of business elements "in repose," as visualized through the balance sheet or equation.

Here we have business elements "in action." If we are to handle these effectively, we must classify them. If there be but two primary groups of business elements, there can be but three primary types of value change, as follows:

1. That which involves assets only. The signs are always *unlike* (plus and minus).
2. That which involves equities only. The signs are always *unlike*—(plus and minus).
3. That which involves both assets and equities. The signs are always *like*—(plus plus) or (minus minus).

Upon these economic and mathematical facts is the whole accounting system built. The arithmetical signs here given are of the utmost importance. The entire scientific ledger is built on the arithmetical signs, plus and minus. Bookkeeping is applied arithmetic. Outside of closing, adjustment, and correction entries (which are entries of *convenience* and *arrangement* only) every bookkeeping entry (directly or indirectly) *adds to* or *subtracts from* the value of some primary business element.

In developing these primary types of value change, the pupil must be forced to continue to think in terms of primary business elements, assets and equities. This reviews, emphasizes, and gives new angles to the work done by the pupil in the first stages, the balance sheet and the equation. In any given case the pupil should determine what business elements have changed value, how, and how much. He also should indicate the character of the change by the visible sign, plus or minus. This use of the visible sign has a real value. It forces the pupil to visualize the underlying arithmetical processes. This is absolutely indispensable in the later mastery of the scientific ledger.

The Classification of Value Change—The Ledger. The third great step is the *classification* of these value changes in appropriate ledger accounts. Here we substitute *position* for the visible signs through the use of the scientific ledger. Since the pupil has been taught to know value change in terms of primary elements and the scientific ledger is in terms of primary business elements, he now easily learns the ledger scheme. Here again the pupil is forced to continue to think in primary business terms. This is accomplished through the use of basic accounts only. Every account is a balance-sheet account. In this way all value changes are recorded in elemental terms.

Through this plan of development, incidentally, though not intentionally, the bookkeeping processes are considerably simplified. There are no closing processes. We need none. We never close one basic account into another basic account. However, we are able to produce a perfectly correct balance sheet and a perfectly correct profit and loss statement. The former makes use of every account on the ledger; the latter is obtained through an analysis of the capital account. No system of accounting, however complete or accurate, can do more.

I make no claim that the work up to this point is clerically efficient. In fact, it is not. My effort has been merely to build a broad and deep foundation for the pupil's future accounting structure. The die has now been cast; it will favorably modify all the pupil's work, whether in accounting or business. It gives him an entirely different brand of thinking. He has a foundation upon which he may build any accounting superstructure.

The great trouble is that we have always been in such a hurry to get the pupil making a noise (sawing boards and driving nails) that we have entirely neglected all foundation work.

Some have asked me about the relative importance of the three steps just described. This is quite impossible to say. It is a case of "the hand cannot say to the foot, 'I have no need of thee.'"

However, they occur in the natural sequence just given, and not one can be dispensed with. This means that the balance sheet, while vital and initial and indispensable, is only one of three equally important steps. I shall designate this three-sided approach, because of its scientific features, as the "Economic Approach."

THE ACCOUNTING SUPERSTRUCTURE

The purpose of part two is to develop those secondary accounting and ledger relationships which make accounting practicable, yes, even possible. If all bookkeeping accounts were primary accounts, the mastery of bookkeeping would be extremely simple. However, to be clerically efficient, we must classify certain items *at the time of making our original entries*. This means the introduction of a class of accounts which are secondary or subordinate in their character. They are always *parts* or *subdivisions* of primary or basic accounts. This makes necessary the closing process. On occasion all the scattered parts of an account must be united; there must be

a "family reunion." This is accomplished through the *closing process*, a "homecoming" process.

The closing processes have formerly been among the most difficult of the bookkeeping steps; however, this should not be so. The closing process is based entirely on relationships; and once the underlying relationships involved are understood, the closing process becomes reasonable, natural, and simple.

In addition to the closing processes, the adjusting processes should also be mastered. The adjustments are among the most important and are, without question, the most difficult of all the accounting steps. They involve the separation of mixed accounts into their proper divisions. They have remarkable educational features. They compel the pupil to continue his thinking in *elemental* business terms; they call for very special use of the pupil's judgment, in that the pupil must detect assets and liabilities even when they appear under the nomenclature of expense and income. Notwithstanding this fact, they may be effectively and profitably introduced early in the course. The lack of the mastery of adjustments is perhaps the weakest link in the chain of even the experienced bookkeeper.

These processes just mentioned can be fully developed only as the pupil is taught to interpret the secondary accounts and processes into primary terms. This means that the pupil can think analytically only as he is able to think in primary terms, either directly or indirectly; if indirectly, through secondary accounts. If items, for any reason, are registered in secondary accounts, the pupil must be taught the existing relationships in such a way that at all times he is able to interpret the secondary into terms of the primary.

To illustrate this point and show the advantage of primary thinking, let us take an assumed case. I owe the ABC Company, on account, \$300.00 due in thirty days. They offer me a reduction (discount) of two per cent for immediate payment. I send a check for the net amount, \$294.00. The following primary elements are involved: Accounts Payable, minus, \$300.00; Cash, minus, \$294.00; Net Worth, plus, \$6.00. One eminent author and accountant, in commenting on this particular case, said, "The pupil does not at this time know, and it would be pedagogical suicide for him to know, that the \$6.00 item involving Capital will later show in a highly arbitrary account known as the Purchase Discount. It would defeat the very thing you have in mind." This is very true.

However, when the pupil first thinks in primary terms, (in terms of Capital) and then later uses the special secondary account, Purchase Discount, he easily interprets Purchase Discount into terms of Capital, from which it is detached.

Another example is found in the value loss due to depreciation. The pupil who is first taught to think elementally and analytically, finds that in case of depreciation two primary business elements are always involved, some fixed asset and net worth, both minus—a type three value change. Later, when he is called upon to use the highly artificial account, Reserve for Depreciation of Some Asset, he is able to interpret it into primary terms. He is able to think in terms of the actual business element involved, namely, some fixed asset. This method of determining value change is journalizing of the very highest type.

I had the pleasure last summer of a very interesting conference with a successful business man of the Central West. In this conversation he said: "The primary property concepts you mention are simple. I can easily and clearly think in their terms. However, when I talk with my accountant, I get entirely lost. It seems to me this should not be so." He further said: "I have had children at various times in high school. Some have taken bookkeeping. It has always seemed to me that their work was imitative and not educational."

Here is the crux of the matter as I explained it to this business man:

Mr. Business Man, as you say your property concepts are simple and correct. This is true because your thinking is, and always has been, in primary terms. If accounting were as primary and direct in its accounts and terminology, you could follow your accountant with ease. If each business element, for instance, had but *one* account, then bookkeeping would be as simple as business itself; and you would have no trouble whatever in following your accountant.

However, in order to be clerically efficient, in order to classify certain desired facts with the least effort, accounting has gradually built up a large number of highly artificial and arbitrary accounts. In fact, the majority of all accounts found on the ordinary ledger are secondary accounts. These secondary accounts are merely temporary subdivisions of certain basic accounts. You, Mr. Business Man, do not know the *relationships* existing between these specially named (or misnamed) secondary accounts and the primary accounts from which they spring and for which they stand. Your accountant does. You think easily and correctly in terms of delivery equipment or printing equipment or machinery or whatever has depreciated. Your

accountant *thinks* the same thoughts, but *talks* in terms of reserve for depreciation this or that. You are immediately lost. He might as well speak to you in a foreign tongue.

If, however, you understand the relationship existing between the secondary accounts, Reserve for Depreciation of Machinery, etc., and their basic accounts, Machinery, etc., you will find you are each talking about the same identical thing. You, or anyone else, can think straight only as you are able to interpret secondary accounts into primary terms; then and then only can accounting thinking be truly analytical. This is true of you as a mature, experienced business man. It is much more true in case of the inexperienced pupil, who is just taking up the subject of bookkeeping.

If thinking is in terms of secondary accounts only, It can never be truly analytical, and for high school pupils, certainly, any thinking must be analytical to be educationally valuable. Accounting analysis is impossible except where a pupil is able to interpret each business move in terms of primary business elements, their increases and decreases.

SPECIAL TEACHING DEVICES

Admitting the desirability of the general plan of connecting through basic relationships the primary and secondary accounting concepts, a most natural question will be: What is the best method of producing this desirable end?

Personally, I develop the scheme in two bookkeeping cycles, closely related and yet essentially different. My first cycle features service enterprises; my second cycle features commodity-cost enterprises. Service enterprises include banks, transportation, all kinds of trades and professions, etc. Commodity-cost enterprises include trading, manufacturing, mining, etc. Service enterprises differ in degree only and not in kind. Commodity-cost enterprises differ in degree but are alike in kind. The essential difference between trading and manufacturing is in the relative difficulty of determining cost.

From an accounting standpoint, however, the service groups and the commodity-cost groups differ widely. In the service group we are interested in but one accounting fact, *returns*. In the commodity-cost enterprises we are interested in two absolutely *indispensable facts*, viz, *cost* and *returns*. Between these two there is much difference as to accounting simplicity. In the service group, the pupil is obliged to think only on the hypotenuse of his accounting triangle. In commodity-cost enterprises, he must think on the two

legs of the triangle. If the cost element were reduced to one item (as in the sale of a building lot) it would not be so involved. But when conventional trading accounts are used, in which a large number of items make up the cost, (in-freight, purchases, rebates, allowances, etc.) the cost element becomes unduly involved for beginners.

Trading accounts are among the most highly artificial accounts we have. This is necessarily so in order to produce the essential clerical efficiency. Eventually the pupil must master these important accounting devices. But my contention is that they are pedagogically unsound for beginners. Where conventional trading accounts are used, we subdivide our asset, merchandise, into three, six, and sometimes even ten accounts. But, even so, no matter how many we may have, all but the one basic account, merchandise, are closed out at the end of each period. This makes necessary an involved closing process. This is not difficult for the pupil who has had his fundamental relationships properly developed; but when the beginner is thrown immediately into these involved arrangements, it is difficult, if not impossible, for him to master true relationships.

Not only are the service enterprises advantageous because of their pedagogical simplicity; there are also incidental advantages which accrue from their use. (1) Their use increases greatly the accounting vocabulary of the pupil. It gives the pupil a more or less complete list of accounts peculiar to certain professions. (2) It impresses on pupils that there are other lines of human endeavor than trading which require accounting.* (3) The average young person who goes out into his first position is more likely to go into some service occupation than into the trading endeavors. (4) Another reason for using service endeavors for a part of our development, is humanitarian. It is well for the pupil to have a little change in mental diet. Where he is fed morning, noon, and night on purchases, sales, purchases, sales during his entire accounting course, his work must necessarily become monotonous.

However, while there are several excellent reasons for the initial use of service endeavors, the pedagogical feature is my outstanding reason. I do not attempt in the initial stages to develop a set of

*Service endeavors are increasingly important. John Hertz is responsible for the statement that the American people to-day pay more for service alone than they paid a generation ago for services and physical commodities combined.

books which would be models for a lawyer, physician, etc. I merely use service accounts as the framework on which to nail my pedagogical boards.

After the general accounting background is acquired through service accounts, I develop fundamental trading relationships. With the general background developed in cycle one, the service enterprises, it is possible to give a real thorough treatment of these highly important trading accounts.

The entire matter summarized in a single statement would be: Teach the pupil to know: (1) primary business elements in their scientific relationships; (2) scientific value change in terms of arithmetical signs; (3) the classification of value change through the standard two-column ledger; (4) the most approved methods of recording these value changes in such a way as to produce the greatest clearness and clerical efficiency.

REVIEWS

Outlines of Accounting, Volume II, by WILLIAM S. KREBS. Henry Holt and Company, New York, 1927. xxvii, 1,049 pp.

As explained in the preface, this is the second volume of a series of three volumes on the theories and methods of "General Accounting." The principal subjects discussed in this volume are the voucher system, accrued and deferred items, preparation of statements, forms and kinds of statements, revenue and expense, valuation, and depreciation.

As a general criticism of the work, it seems in several instances that Professor Krebs has said more than was necessary to make himself clear. It must be said, however, that he has made his discussion of each subject taken up, thorough and complete. This should recommend the book particularly for the purpose for which it was intended, that is, for the classroom. As all who teach will testify, the most elementary and obvious propositions must often be repeated again and again to register with all those present.

Professor Krebs does not crusade for any "new theories" of his own. For this he should also be congratulated. In the case of questions involving different opinions, he has presented the views held by reputable authorities and has then contented himself by selecting from these reviews in setting forth his own ideas on the subject. Therefore, the student is given an opportunity to know what Professor Krebs prefers, but he is also given an opportunity to investigate the views from which Professor Krebs has made his selection.

ARCHIE M. PEISCH

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Goodwill and Other Intangibles, by J. M. YANG. Ronald Press Company, New York, 1927. v, 238 pp.

With two such excellent treatises as those of Dicksee and Leake, it may seem somewhat presumptuous to publish a new book on goodwill, written by a young and unknown author as a doctor's thesis. The product, however, is fully justified, and the author is to be congratulated on a work which need not fear comparison with the earlier treatises.

The author does not branch out into such questions as the relationship between goodwill and the national capital and the income tax, as does Leake; nor does he deal at length with the legal aspects of the subject nor the details of mathematical calculation and bookkeeping entries. On the other hand, he has gone into a more extensive discussion of the essential accounting features of intangibles than has hitherto been attempted.

The book begins with a chapter on the definitions of intangibles. As others, the author finds difficulty in framing a thoroughly satisfactory definition and practically resorts to enumeration. The chapters immediately following discuss the nature of goodwill and show its relationship to earning power and to other intangibles. Then follows a detailed and penetrating comparison of purchased intangibles with those not thus acquired. The closing chapter deals with intangibles in partnership and corporate reorganization, and contains a somewhat questionable thesis regarding the booking of goodwill when there is a change in the personnel.

If one must attempt a general criticism of so excellent a work it would be along the line of too rigid a differentiation between tangible and intangible assets. Thus the author states (p. 199): "As indicated at several points, costs bear no definite relation to value in the case of intangible properties." Is not the same statement true of tangible assets? Does the cost of constructing a railroad or of building a ship or a house have any definite relation to its value? The price paid in open market for a commodity does indeed, presumably, represent the then value of the commodity, but even that holds only for a moment. Specialized and non-representative assets would only by chance have a value corresponding to their original cost.

Throughout the book, also, there is some indefiniteness as to the basis for refusing to allow a reappraisal of intangibles. Is this because they are intangible, or because those assets ordinarily called intangible are in many cases difficult of appraisal? The author several times states that there is no real basis for determining the value of goodwill built up by a business. But every day goodwill is being sold at some determined value. This obviously means that two persons, buyer and seller, have agreed upon a value. Such an appraisal, made at the time of purchase, is considered a legitimate entry in the purchaser's books. But if these two were able to determine the value of goodwill in a given instance, why is it impossible for the proprietor, consulting with one or more other persons who are not purchasers, to determine the value of goodwill with as great a degree of accuracy as that reached in case of a transfer? This is not an argument in favor of entering in the books built-up goodwill or of showing an appreciation of goodwill previously purchased; but it is a question as to the sufficiency of the author's statement. Such questioning seems appropriate in regard to a work which is primarily theoretical in character.

The first reaction on reading *Goodwill* is to apply to it the adjectives "thought-provoking" and "stimulating." One hesitates to employ such over-used and trite expressions, but they are so singularly appropriate in this instance that there seems no escape. That the thoughts aroused in the reader's mind may, in some instances, be a question as to the adequacy or soundness of this or that statement, is not a criticism. In the present state of accounting, one does not expect to find agreement. But all, who are interested in accounting, should honor Doctor Yang for having added to the literature of the subject a work which does not consist of the details of routine technique nor of a mere reiteration of accepted phrases and pseudo-principles. This work is an attempt at a scientific and logical analysis of

some of the most difficult phases of accounting theory. Few writers have made such attempts. Praise is to be given the author not only for his boldness in making the attempt, but also for his marked success in carrying it out.

HENRY RAND HATFIELD

University of California

How to Read a Financial Statement, by HERBERT G. STOCKWELL. The Ronald Press Company, New York, 1925. vi, 443 pp.

In any consideration of this book it is necessary first to understand what the author means by "financial statement." The reviewer's first reaction to the book, when referring to it some time since, was a feeling of disappointment that is covered only statements of financial condition. This fault, if indeed it is a fault, has now been remedied by the author in writing another book, "How to Read a Profit and Loss Statement" also reviewed in this issue). At any rate, it would have been better, in the reviewer's opinion, if the title had been "How to Read a Balance Sheet."

The book is very commendable as a comprehensive analytical study of the various factors contributing to the financial condition of a business. By its clarity and simplicity of expression it accomplishes its stated purpose of furnishing a guide to credit men, bankers, and investors. It is no less valuable to accountants, and should be read by every student of accounting.

There are thirty chapters in all. In the first are discussed general matters of form and principles involved in the preparation of balance sheets. The author wisely objects to complete standardization in form and arrangement except for concerns in the same line of business. Many different forms, encountered in actual experience, are reproduced in this chapter and elsewhere throughout the book.

The second to the thirteenth and the sixteenth to the twenty-sixth chapters are devoted to detailed discussions of balance-sheet items. The accounting principles enunciated are sound and the treatment is calculated to give the reader a good fundamental understanding of the significance of the respective items.

The fourteenth and fifteenth chapters are concerned with the analysis and interpretation of the statement as a whole. The latter, entitled "Comparing Successive Financial Statements," is, in the reviewer's opinion, the most valuable chapter in the book, considering the general purpose of the work. The arrangement of chapters is a bit confusing, but it must be recognized that that is a very difficult problem in any work of this character.

Five chapters, the twentieth to the twenty-fourth, contain interesting discussions of funded debt and the various classes of capital stock, treating the subjects from the point of view of finance as well as accounting.

Altogether, it may be said that a study of this work should enable any one to read most balance sheets intelligently.

WILLIAM H. BELL

Haskins & Sells

How to Read a Profit and Loss Statement, by HERBERT G. STOCKWELL. The Ronald Press Company, New York, 1927. viii, 411 pp.

This is a companion volume to the author's "How to Read a Financial Statement" (also reviewed in this issue). It is a very valuable contribution to accounting literature.

The author states his purpose in the preface as follows: "It is the purpose of this volume to explain the meaning of those statements (profit and loss, earnings, and income statements); what is or should be found in them; how many things not usually associated with the profit and loss statement bear directly upon it; how it acts and reacts upon the balance sheet; and how to analyze the many various kinds of profit and loss statements now issued, privately or publicly, by concerns of various sizes and operating in different lines of industry." This ambitious purpose has been accomplished, and in such a way as to justify the further representation that the work is adapted to the needs of the credit man, banker, and investor, as well as the accountant and the student of accounting.

The author first shows and comments on some complete statements. Then he discusses and analyzes the various items and classes of items, giving copious and graphic illustrations. The last four chapters are devoted to the broader application of analysis and interpretation of the statement, including the relationship of operating results to the financial condition of the business. These chapters are especially good.

The illustrative forms presented throughout, upon which most of the discussions are based, have been taken from actual experience and reflect all sorts of conceptions regarding classification and arrangement. The author states that "there is no good ground for demanding that published profit and loss statements shall be prepared according to any form." While this is true, the book would have been slightly more valuable, to the student of accounting at least, if the author had expressed some of his own ideas regarding a desirable form for general use and had not left the reader in such a confused state of mind on that subject.

The accounting principles expressed are orthodox; for instance, the author regards with disfavor the inclusion of interest in cost. In one relatively minor respect, however, the reviewer is disposed to disagree with the author on practical grounds. On page 144 it is stated that "any amounts charged off for any reason, the origin of which dates back to prior periods, should not be treated as a loss for the current period. The accumulated earnings in the surplus account is the proper place to charge such losses . . ." This is a theory which is more honored in the breach than in the observance when it is applied to any but the most extraordinary charges and credits. Literal compliance with the rule produces the absurd result of charging and crediting to surplus ordinary lap-over items, from which there can be no escape.

There is an excellent discussion of statements issued in connection with security offerings, in the chapter on "Earnings Over Interest and Dividend

Requirements." There is also a good chapter on "Distribution of Profits."

To reiterate, this is a good book.

WILLIAM H. BELL

Haskins & Sells

Auditing Procedure, by WILLIAM B. CASTENHOLZ. LaSalle Extension University, Chicago, 1927. 430 pp. and Appendix.

This book, which is essentially a textbook, is a second edition of a work which appeared originally in 1918. It should not, however, be confused with earlier editions, as it is in the main a new book and a very great improvement. In the opinion of the reviewer it is admirably suited to classroom use.

The author seeks to avoid all ambiguity by giving numerous examples to illustrate conclusions. This makes the book especially valuable to students and reduces the time which the instructor would otherwise need to devote to explanations. However, if there is any criticism to be offered, it is that some of the examples presented are unnecessary.

It is interesting to note that Mr. Castenholz does not adopt the same liberal attitude with regard to inventory values that he has supported in his recent articles in *THE ACCOUNTING REVIEW*, but this stand is at least consistent with the view that controversial questions should not be presented to students beginning their study of auditing.

The arrangement is practically the same as that followed by other standard texts on auditing; first, a section of 245 pages dealing with the general principles of auditing; next, a series of chapters, totaling about 140 pages, devoted to the peculiar problems arising in various types of businesses; and the remainder of the book given over to a discussion of audit reports and working papers and including what is now accepted as essential in any work on auditing—a complete audit report with working papers.

F. E. ROSS

University of Michigan

Auditors' Certificates, by DAVID HIMMELBLAU. The Ronald Press Company, New York, 1927. x, 153 pp.

The early literature of American accounting has been broad and general in its treatment of the subject; thus, we have had books dealing with the "principles of accounting," with "cost accounting," with "auditing," and so on. This is as it should have been, and still these works are undoubtedly of greatest importance to accountants. But with the development of the science and profession of accounting there has also come a demand for more specialized and technical books, and so we have books dealing with the peculiar accounting problems of various industries, such as reports and working papers. Professor Himmelblau's new book is an important addition to this specialized literature.

"Auditors' Certificates" is a monograph of ten short chapters, an appendix

of English and other foreign certificates, and a very brief bibliography. The chapter headings are as follows:

- I. Introduction
- II. Certificates Used in Annual Audits
- III. Definitions
- IV. Unqualified Certificates
- V. Qualified Certificates
- VI. English Practice
- VII. Certificates Used With Balance Sheets Adjusted to Show Effect of Financing
- VIII. Do. (continued)
- IX. Faulty Certificates
- X. Summary

There are ninety-two certificates or portions of certificates shown as exhibits, many of these being taken from the published accounts of our most prominent corporations. Thirty-five of these illustrate certificates used in annual audits, thirty are certificates used with balance sheets adjusted to show the effect of financing, and twenty-seven are English and other foreign certificates.

As might be inferred from the above, "Auditors' Certificates" is a compilation of materials from numerous sources—in fact, only approximately twenty-seven pages in the entire volume are not quotations, and these are mainly brief comments on the various certificates shown. My single disappointment in the book is that Professor Himmelblau did not emphasize at greater length what are the qualities and characteristics of good certificates; this is the constructive work which needs to be done for the profession. The period that is being audited, and the specific assumption of responsibility on the part of the auditor that the statements certified do or do not state the true financial position of the company, are certainly the minimum that can be asked in an auditor's certificate—yet how many certificates do not contain these basic requirements! I have enjoyed reading the book, and I believe it will find a place on the desk of nearly every accountant; I also express the hope that should the book be revised, Professor Himmelblau will give even greater emphasis to what is needed in good certificates.

J. HUGH JACKSON

Stanford Graduate School of Business

Chain Store Accounting, by HOWARD C. GREER. McGraw-Hill Book Company, New York, 1924. ix, 312 pp.

The author has made a contribution to the literature of accounting and to an increasingly important phase of business activity. With this volume the public accountant should be prepared for chain store problems, particularly those pertaining to systematizing. Wherever curricula might include the subject of chain store accounting, either as a course or as a part of a course, this book will be well suited for text purposes. The book also contains many valuable suggestions to the manager or bookkeeper actually engaged in chain store operation.

A knowledge of double-entry bookkeeping principles is prerequisite to an intelligent reading of this book, but the author has developed the subject simply and logically so that it may serve a broad class of readers.

The first thirteen chapters, some two hundred pages, are devoted to the operating aspects of the chain store. Business activities, transactions, and problems affecting important balance sheet items such as cash, charge accounts, and merchandise are first given consideration. In respect to merchandise, the book includes chapters on control methods, physical and perpetual inventories, and retail inventories. These and all other chapters are supplemented by business forms, carefully drawn and thoroughly explained.

The reviewer feels that the book's chief merit is due to the first nine chapters devoted to the discussion of cash, charge accounts, and merchandise. They reflect the author's experience and careful research. Only one chapter, the tenth, is devoted to accounting for expenses. This would seem to be disproportionate to the space given to other phases of chain store activity.

A chapter is given to "Manufacturing and Other Side Lines." The purpose appears to be to indicate the relation of manufacturing to the chain store problem rather than to treat exhaustively the subject of manufacturing costs. Subsequent chapters deal with the journal and ledger records and furnish complete instructions for summarizing and closing the books. The last five chapters are devoted to a discussion of balance sheet accounts, the preparation and interpretation of the financial and operating statements, the use of ratios and other statistics, and to specific problems related to various types of chain store.

The reviewer feels that the author accomplished what he set out to do, to contribute facts which will increase knowledge of this particular branch of commercial activity.

HOWELL A. INGRAM

Columbia University

Manual of Municipal Accounting, by LLOYD MOREY. John Wiley & Sons, Inc., New York, 1927. ix, 187 pp.

"Manual of Municipal Accounting" is a notable contribution to a field in which little of use has been produced. Clarity and practicality are its greatest assets. Professor Morey's treatment is comprehensive, his language is non-technical, and his recommendations can be understood and applied by any municipal accountant. The suggestions given have the advantage of present successful use in several cities. The forms submitted for various purposes are unusually valuable.

The writer speaks well when he says, "not to sacrifice thoroughness and completeness for simplicity," and "one of the major purposes of a municipal accounting system is to produce information." These points are many times overlooked.

Accountants chiefly engaged in commercial practice where the question of profit and loss is involved should read the remarks on the futility of figuring depreciation (except on utilities), the lack of need for accruing expenses,

and the necessity for fund accounting before undertaking municipal work.

The work fulfills its intended purpose of being "a practical guide for city officials concerned in accounting and financial matters, and for others concerned in the installation of a municipal accounting system." It can be unhesitatingly recommended to all public accountants and city officials whose duties lead them to a city's records.

CARL H. CHATTERS

City Auditor, Flint, Michigan

Bank System and Accounting, by F. L. BEACH. The Ronald Press Company, New York, 1927. ix, 373 pp.

The author has written this book mainly for banks and bank employees. It will prove of little help to the ordinary accounting practitioner or reader unless he specializes in bank work, because in most of the chapters system rather than accounting is stressed. The reader is left confused after reading the numerous methods employed by different banks in accounting for similar transactions and seldom does the author indicate a preference for one of the methods described.

However, for a bank officer or employee who is interested in learning the various systems and forms that have been developed in other institutions for recording the routine bank operations this volume should be of great help. It would also be of considerable assistance to bank auditors whose duties include the introduction and supervision of improved methods of accounting for the different departments of a commercial or savings bank.

Strictly banking operations are ably and completely covered by the author in his text and in his choice of illustrative forms. A few of the more complicated forms have been left blank; their purpose would have been much more readily comprehended if they had been filled in with specimen transactions. The majority of the forms, however, have been so completed.

The accounting and system problems of the larger city banks in the operation of foreign exchange, mortgage loan, trust and bond trading departments are little more than touched on in this volume, when compared with the thoroughness with which the author has covered the ordinary bank operations.

In his discussion of the various methods employed by banks in keeping general books the author leaves the impression that he prefers mechanical posting. Accountants who have audited banks using this method, will, I believe, disagree strenuously. Entries requiring explanation not covered by the codes are left to be written in later but in many cases later never comes and the auditor spends much time asking for general tickets to complete his analyses.

The chapter on accrual accounting is interesting and complete. Officers and directors of the majority of the country banks and small city institutions would benefit by a careful reading of this chapter as it brings out the relatively small amount of additional effort that is required to operate the accrual method when compared with the many advantages derived there-

from. Similarly, the author's outline of bank cost accounting should be enlightening to bank officials who remain convinced that an attempt at the establishment and maintenance of a satisfactory system of costs for banks is more expensive than any possible savings that might result.

The volume would not serve as a class textbook, being prepared principally for bankers, and presupposes a considerable acquaintance with bank systems and accounting routine.

M. J. SCHMAUS

Arnold, Morin & Company

Bank Audits and Examinations, by JOHN I. MILLET. The Ronald Press Company, New York, 1927. viii, 400 pp.

This is an excellent work on bank auditing and easily the best exposition of what a bank examination should cover that the reviewer has read. That the author has had a wide experience in bank auditing and routine is continually evidenced by his reasoned criticism of the different methods followed by banks and his outline of the audit procedure under the varying conditions.

The author has stated the methods of the most common defalcations met by bank examiners as well as a number of novel means employed by bank embezzlers. His audit procedure for the various bank operations explains in considerable detail not only how to detect the existence of a misappropriation of funds arising out of the practices described, but how to utilize the results obtained from the examination for interesting presentation in the report on the audit.

The arrangement of the chapters follows the order of items as presented in a model statement of condition. Included with the discussion of the various assets and liabilities are instructions for the audit of the appertaining income and expense accounts.

Systems of internal check are outlined in considerable detail for all of the routine banking operations. The author's suggestions cover not only banks maintaining their own auditing departments but also smaller banks where an auditor or an auditing department is impracticable. Public accountants will find many valuable suggestions on internal check throughout the volume in addition to the special chapter devoted thereto.

The chapter on auditing of the foreign exchange department of a bank evidences that the author is conversant with the problems usually encountered by an examiner in checking the operations of this department.

Public accountants having a bank clientele or contact could help their profession considerably by asking the bank directors to read the author's chapters on "Directors" and "Directors' Examinations." Many bank directors and most bank stockholders remain of the opinion that the frequent examinations made by the government auditors supplemented by the periodical directors' check-up is ample to protect the bank's funds from misappropriation. The author again and again in his text proves the fallacy of the opinion.

Especially valuable for public accountants is the model bank examination and audit program mapped out by the author. The program outlines the steps to be followed in a detailed audit and seems to cover all accounts and records completely.

The book contains an interesting chapter on ratios that can be determined from an analysis of the audit results. The use of ratios for comparative purposes and as evidences of the trend of operations has been neglected by banks. Certainly their use has not been developed to the same extent as in trading and manufacturing concerns.

The chapter on the auditor's report offers some interesting comments and comparisons that may be advantageously employed by accountants.

The volume should serve as an excellent reference book in any course devoted to banking.

M. J. SCHMAUS

Arnold Morin & Company

Analysis of Railroad Operations, by JOSEPH L. WHITE. Simmons-Boardman Publishing Company, New York. xii, 381 pp.

This volume, the author of which was formerly Assistant Comptroller of the United States Railroad Administration during the period of government control and operation of our railways, emphasizes the extent to which standardization of railway accounts and statistics has gone in the United States. He properly stresses the accuracy and completeness with which the operating results of our steam railways can be analyzed. This analysis is of two types, one consisting of a comparison of previous performances on the same railroad, the other a comparison with the performances of other railroads operating under similar conditions.

The principal purpose of the book is to describe and explain the various accounting groups, such as revenues, expenses, operating statistics, and the like, and to indicate along what lines each of them is important. There is also a section devoted to the complicated and puzzling question of unit costs.

A number of minor points in the book are not sufficiently explained for the purposes of the layman, but these are not of great importance, and for the most part the author follows approved methods of analysis and emphasis.

The principal criticism of the book is that it is guilty of the same fault that has characterized several previous volumes of like character. Of the total 373 text pages, only 148 are devoted to analysis, while the remaining 225 are taken up with reprints of classifications of the Interstate Commerce Commission, various rules, definitions, and the like. It would have been far better to include more text and fewer classifications; at least, the classifications might have been somewhat condensed. As a matter of fact, these classifications are available in handy form from the Government Printing Office at Washington; they have been reprinted a number of times in previous analyses by other authors; and they are always subject to changes in detail from time to time.

The text devoted to analysis is not subject to the same qualifications, and

could and should have been made stronger by further development and expansion. In other words, the author gave us a good taste; but his meal might have been more filling.

JULIUS H. PARMELEE

Bureau of Railway Economics

The Mathematics of Business, by W. V. LOVITT and H. F. HOLTZCLAW. D. Appleton & Company, New York, 1926. xiv, 246 pp.

In this book, Professors Lovitt and Holtzclaw have presented in the main the material usually included under the heading "Mathematics of Investment" or "Mathematics of Finance." It has been their aim to bring the subject matter closer to the everyday life of the practical man. The device used to emphasize this practical aim, however, labeling the book "The Mathematics of Business," seems to the reviewer unduly pretentious and misleading. The mathematics which is or should be used by business men includes at least as much mathematics of statistics—percentages, averages, ratios, index numbers, seasonal factors, and trends—as of the mathematics involved in the compound interest function, life insurance, and annuities. Even in connection with many of the problems discussed by the authors, the real difficulties of the practical man occur in determining and justifying certain statistical ratios. For instance, the biggest difficulty in solving depreciation problems is usually in deciding what the "average life" may fairly be estimated to be. Again, in connection with industrial pensions, the things hardest to obtain in the analysis of the obligations thereby assumed are reliable continuance rates and average salary schedules for various groups of employees. The reviewer feels, therefore, that the title used by the authors tends to belittle the true place of mathematics in business and to misrepresent the actual contents of the book.

In view of the practical aim of the book, it is unfortunate that the statements on certain practical points are incorrect. For instance, on page six, it is stated that money deposited in a savings bank between two interest paying dates does not begin to bear interest until after the next interest paying date. This statement ignores the fact that many banks begin to compute interest as of the first of the next calendar month after the deposit is made, and even in the case of deposits made in the first few days of the month, begin to compute interest on the first of the current month. Again, on page 100, it is stated that if an investor buys a bond at a premium, the rate realized on his investment is less than the dividend rate. This statement is subject to two exceptions. In the first place, the rate realized by the investor cannot be computed without knowing the price at which he subsequently sells the bond. It is implied, of course, that the investor holds the bond to maturity, and should be so stated. In the second place, even if held to maturity, if the bond is redeemed at a premium it may still be true that a purchaser buying at a smaller premium may realize as much or more than the coupon rate.

A third error is more serious than the two preceding. On page 140, the

authors say, in regard to *The American Experience Table of Mortality*, "the table states within narrow limits what has actually been experienced by insurance companies over a considerable number of year." The actual facts are, of course, that the mortality experienced by insurance companies is usually from forty to seventy per cent of that given by the *Table*. The authors' error on this point is particularly inexcusable in that on the preceding page they quote a correct statement from Henry Moir to the effect that the table furnishes a "safe" basis of measurement of American mortality.

The section on depreciation seems to constitute a very unsatisfactory introduction to a subject which is of vital interest in connection with income tax reports, investment banking, public utility rate regulation, and other problems. On some crucial questions the ideas of the authors seems hazy and out of touch with important points of view. They do not seem to realize, for instance, that some companies set up depreciation reserves in excess of any deterioration or obsolescence that has yet taken place, and that in such cases current deterioration may represent only a small part of the current depreciation charge. A statement that seems to exhibit hazy ideas is that on page seventy-eight to the effect that by the sinking fund method the greatest depreciation is in the last year, whereas two pages earlier it had been stated correctly that by the sinking fund method "that sum of money is set aside each year which, if accumulated at a specified rate, at the end of a given time will provide a fund equal to the original cost minus the scrap value." The authors reach their peculiar conclusion by including interest on the previous accumulations with the depreciation charge of the current year, and calling this total "yearly depreciation." This seems to the reviewer to involve a complete misapprehension of sinking fund accounting.

Only actual teaching experience will show whether the explanations will really make things clear to the student or user in business life. There is, at times, a certain freshness about the method of attack; on the other hand, several discussions seem to the reviewer lacking in precision and logical orderliness. For instance, the transition from the *a priori* to the statistical definition of probability seems to the reviewer to be logically inaccurate and incomplete and probably confusing to the student. It may turn out, however, that the majority of students will derive more profit from this type of discussion and that the authors can, therefore, claim pedagogic justification for their methods.

While, as indicated above, it seems to the reviewer that the authors could have done a much more careful piece of work, it must be recognized that they have contributed something different and in some ways better to the publications already available in this field. A full chapter, for instance, is given to bonds, with careful explanation of several points which are often not treated and with more of a bond table than is usually included. There has been some extension beyond the traditional range of topics, as, for instance in adding a chapter on profit and loss. In connection with the treatment of life insurance, the authors enumerate a number of the topics which they do not treat, thus avoiding the implication of many textbooks that the ground has been completely covered. The desire to produce a treatment

which will be clear to the practical banker or business man is certainly commendable. The book will, therefore, probably find a useful place as a reference book for college classes and for some business offices.

R. W. BURGESS

Western Electric Company

Investment Trusts, by LAWRENCE M. SPEAKER. A. W. Shaw Company, New York, 1924. x, 112 pp.

This book is a publication of a monograph which in 1924 was awarded second prize by the Chicago Trust Company in a competition for research relating to business development and the modern trust company. It deals with a subject which is timely and interesting, and one which it seems quite probable we shall hear much more of in the future development of our financial life and investing machinery.

The investment trust, as one learns from this book, has been essentially an English development, with a fairly successful record when honestly administered in that country. It is in reality a method by which investors can turn over their funds for investment to competent financiers, who, with the large funds thus made available can afford more thorough consideration and investigation of investment opportunities. This is particularly so when investment is made in foreign lands and under foreign laws; in such circumstances customs and conditions other than balance sheets and earning records must receive consideration. Through the trust a diversification is also obtained which the relatively small investor could not hope to secure, a diversification not only in terms of industry but also in terms of country, locality, and character of security.

The book is clearly written and gives interesting statistics and historical data on several of the English trusts. One regrets that the author had not waited three years, which would have enabled him to include data on some recent experiments in investment trusts which have been made in New York. One might also feel that more emphasis has been placed on investments in foreign countries than was necessary. As the author himself points out, the foreign investment was almost necessary for the English investor because of lack of opportunity at home, and the investment trust was of great help in efficiently investigating foreign fields. Nevertheless, it also can be of great service in making intelligent investments at home and this function might have been more clearly shown.

One cannot but feel that the book is a valuable contribution to investment literature, on a subject as yet all too inadequately covered. It is stimulating as well as informative, and I would strongly recommend it to all interested in the subject.

LAWRENCE W. SCUDDER

Lawrence Scudder & Company

Corporations Doing Business in Other States, by H. A. HARING. The Ronald Press Company, New York, 1927. x, 302 pp.

This monograph on the "foreign" corporation aims "to present all the facts required for determination of a business policy." The writer seeks to make clear the problem of an expanding business crossing state lines, to present in digest the cost of qualifying in each of the forty-eight states, and to analyze the more important features of the state regulations and requirements for "foreign" corporations.

The book appears to have been written primarily for laymen, corporation officials especially. It is clear and entirely non-technical in its phraseology. The legal references seem adequate for the non-lawyer. There is no pretense of presenting a legal treatise; rather the legal problems are etched in such manner as to familiarize the layman with the type of question on which he must seek specialized advice. Similarly, the accounting problems involved in the segregation of assets by state lines are suggested rather than analyzed. As a general discussion of the problems met by a corporation whose business extends outside of the boundaries of the state in which it is incorporated, the work is a valuable addition to the layman's literature of corporation procedure. More especially is this true, as in most of the manuals with which the reviewer is familiar this phase of the problem of where to incorporate is given only the scantiest passing reference.

The problem of the corporation doing business in other states than that in which it is incorporated is strongly stated. The writer starts with an analysis of the rights of a corporation beyond the jurisdiction of the state of its creation. Beyond these boundaries a corporation may engage in interstate commerce only, unless it has complied with whatever requirements the other state may set up for "domestication" of a foreign corporation. The essence of the problem consists in the determination of what constitutes doing business. To this the author can give no clear-cut answer. "Facts govern each instance, those facts being, in turn, interpreted largely in view of the circumstances and motives surrounding them. . . . One statement may be made with certainty: it is increasingly difficult to conduct a nation-wide business without becoming liable to the laws of the states." (Page 69.) It would be unjust to the author to try to summarize his carefully qualified generalizations. Suffice it to say that no corporation officer, after reading the statement, can thereafter do business outside of the state of incorporation without being conscious of the necessity for caution. The penalties for violation of state laws are in many instances far heavier than the possible gain to be derived from the transaction that constituted, perhaps unwittingly, a violation.

There follows a series of chapters bringing together in digest form various state provisions. The accompanying text is only slightly less interesting to the general reader than the earlier sections. The comparative digests should serve as ready reference for the executive.

In the final chapter, "Meeting the Situation," the author shows clearly that he intends to draw attention to a problem that has no universal solution.

Each corporation must define its own policy in view of its needs. But a policy there must be; "the one unpardonable sin . . . is to permit a drifting policy." (Page 280.) In practice some corporations may find it best to maintain the interstate character of all transactions (no easy matter, as pointed out in earlier chapters); others will prefer to qualify to carry on interstate business within each state where they do business, either by "domesticating" or by organizing local subsidiaries; in many instances the methods may be better combined.

A. F. HINRICHS

Brown University

UNIVERSITY NOTES

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Mr. Charles Leveson, a former instructor in this department, has recently passed the California C. P. A. examination and will receive his C. P. A. certificate when he has satisfied the experience requirements.

Mr. Howard S. Noble, chairman of the accounting department, is leaving the department in February to spend the balance of the academic year in London in study of cost accounting and the public accounting profession in England.

The enrollment in the second-year course in advanced accounting has shown a one hundred per cent increase this year.

UNIVERSITY OF CHICAGO

Mr. Paul P. Cooper, who has been an assistant in the School of Commerce and Administration for the past two years, has been placed in charge of the accounting work in the extension department of the University of Pittsburgh. Mr. W. F. Graham, formerly professor of economics at Knox College and also teaching assistant at Chicago, has been appointed instructor in accounting.

Mr. H. C. Daines and Mr. C. R. Rorem have been appointed members of the educational committee of the Illinois Society of Public Accountants.

The curriculum in accounting is being so rearranged that advanced students may be out of residence during the winter quarter for employment with accounting firms.

Mr. Rorem is supervising the preparation of a series of studies in the general field of accounting as a tool of social control. Two of these studies have been completed, "Accounting Activities of the Interstate Commerce Commission" and "Accounting Activities of Trade Associations." An investigation of the accounting work of the U. S. Tariff Commission will be completed this year.

UNIVERSITY OF CINCINNATI

Mr. Arthur W. Holmes, a graduate of the class of 1926, has been added to the accounting staff.

Mr. R. Emmet Taylor is co-author of "Questions and Problems in Economics," published in September by Macmillan. These materials are based on "Elementary Economics," by Fairchild, Furness, and Buck.

UNIVERSITY OF ILLINOIS

Mr. H. H. Baily is on leave of absence for a year of study in Europe. Mr. R. E. Simmons, assistant in accounting, has accepted a position as assistant professor of accounting at Drake University. Mr. I. B. Phillips, former

assistant in accounting, is now associate professor of accounting at Marshall College, Huntington, W. Va.

Mr. Harper, recently head of the department of business administration at the University of New Mexico, has accepted an instructorship in accounting at Illinois. Other new members of the department are J. W. Hansen and C. L. Thomas, who comes from Colorado College. Former assistants J. F. Flynn, C. C. DeLong, and D. R. Johnson have entered the field of professional accounting.

A new course, "Accounting Control and Budgets," is being offered by Mr. A. C. Littleton. Mr. Lloyd Morey is the author of two books on municipal accounting recently published by Wiley. Mr. C. F. Echlatner has published "Elementary Cost Accounting" in the same series. Mr. Littleton is pursuing his research in the early history of accounting.

Mr. H. T. Scovill, head of the department of accounting, has been engaged to direct an accounting investigation of the water plant of Urbana and Champaign for rate-making purposes.

UNIVERSITY OF INDIANA

Mr. E. V. McCullough, assistant professor of business administration, has been appointed head of the Department of Economics and Business Administration at Tarkio College. His place at Indiana has been filled by Mr. E. C. Johnston, who comes from the University of Idaho.

A new text in elementary accounting by Professor A. L. Prickett and Mr. R. M. Mikesell has been introduced this semester. The sequence of accounting courses is being rearranged.

UNIVERSITY OF KANSAS

Mr. V. Morrison, B. S. Illinois, has been added to the staff as instructor in accounting and economics. Mr. L. T. Tupy has been appointed a member of the University Committee of the board of examiners for the C. P. A. certificate.

Enrollment in all accounting courses has shown an unexpected increase this year and additional instructional help has had to be enlisted to handle the elementary course. Accounting majors have increased one hundred per cent and enrollment in all accounting courses fifty per cent.

A new course in accounting systems is to be given this winter by Mr. Tupy.

UNIVERSITY OF KENTUCKY

Mr. P. C. Taylor has left the department and his work is being taken by Mr. W. E. Dickerson, assistant professor of accounting. Mr. E. Z. Palmer has been added to the staff and Mr. M. R. Sullivan is a new part-time instructor. Mr. Palmer receives his Ph. D. from Wisconsin this fall.

A bureau of business research has been instituted this year under the direction of Mr. E. S. Leland. Mr. Leland has been awarded a Hart, Schaffner & Marx prize this year.

A combined course in commerce and law has been initiated. It is to be a six-year course and will lead to the degree of M. S. in Commerce and LL. B.

LASALLE EXTENSION UNIVERSITY

Mr. W. B. Castenholz and Mr. Alan P. Murray of Los Angeles will soon issue a book entitled "The Money Problems of Business Men." The new edition of "Auditing Procedure," by Mr. Castenholz has appeared.

UNIVERSITY OF MINNESOTA

Some twenty of the seniors majoring in accounting have accepted positions in public accounting offices for the winter quarter and will return to school in the spring. They will be employed as juniors by accountants in the Twin Cities, Chicago, and Davenport, during the heavy season. The arrangement was tried last year on a somewhat smaller scale and proved very satisfactory. This year more positions have been available than students and all accountants who cooperated last year are again employing men.

A number of last year's seniors have returned this fall to full-time positions with the firms by whom they were employed last winter. The number of majors in accounting has increased thirty per cent this year, due partly to the success of the employment arrangement.

UNIVERSITY OF MONTANA

New administrative officers are in charge of the department this year. Mr. Robert C. Line is Dean of the School of Business Administration, and Mr. H. C. Torney-High, Chairman of the Department of Economics. The new administration is planning some changes in curriculum for the next year.

The Commerce Club and the girls' business organization are having a very successful year.

UNIVERSITY OF OREGON

Mr. Chester R. Ham, assistant professor of accounting, has left the department to enter public accounting practice in Portland. His work will be taken by Associate Professor J. A. Johnston. Mr. O. K. Burrell, who has just completed his work for the Master's degree as Iowa University, will have charge of work in elementary accounting.

UNIVERSITY OF PITTSBURGH

Mr. H. F. Bergstresser has been added to the staff in the extension division. Mr. Bergstresser comes from the University of Kansas. Mr. F. W. Marshall received an LL. B. in June and was admitted to practice in September.

Mr. D. D. Kennedy, instructor in accounting, published an article in the August number of the Journal of Political Economy on industrial relations in the pottery industry. Mr. Charles Reittel has published the second of his articles for the Pennsylvania Industrial Survey on freight rates on soft coal.

TEXAS AGRICULTURAL AND MECHANICAL COLLEGE

Mr. W. J. Bentley is filling the vacancy left by the departure of Mr. B. H. Luebke, instructor in accounting.

Mr. F. J. Hosking has received an M. S. from the College and has been

promoted to the rank of assistant professor of accounting and statistics. Mr. O. A. Weinke has also been promoted to assistant professor.

Mr. T. W. Leland, head of the department of accounting, spent the summer doing graduate work at Northwestern.

UNIVERSITY OF WASHINGTON

Mr. O. E. Draper, a lecturer in accounting, has resigned to accept a position as vice-president of the Northern Bond and Mortgage Co.

Professor W. E. Cox, formerly head of the department of accounting, has been made dean of the School and Mr. H. E. Gregory is now head of the accounting department.

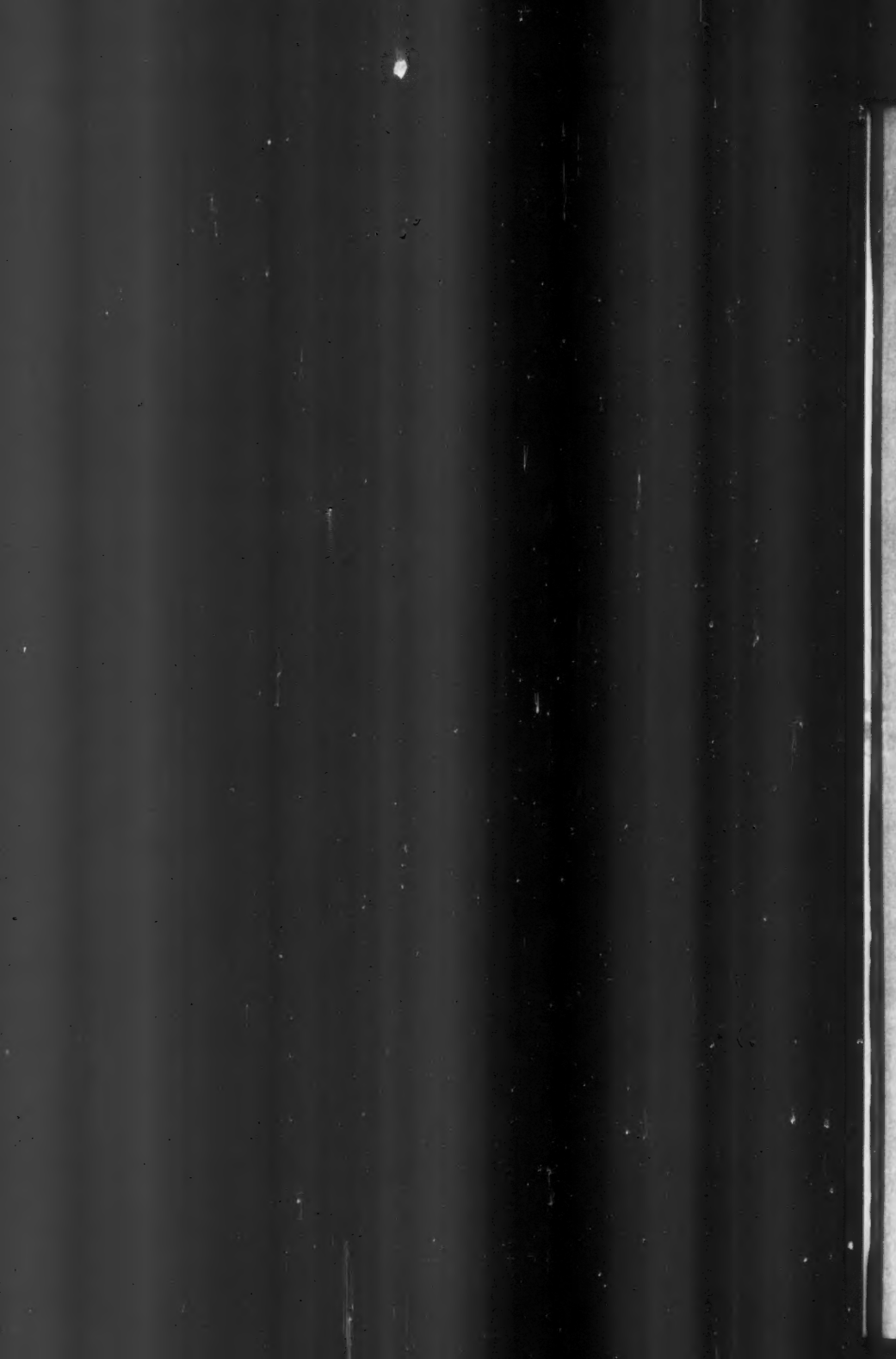
UNIVERSITY OF WISCONSIN

Beginning with the current academic year, the course in commerce has been organized into a School of Commerce with courses extending over the junior, senior, and one graduate year. Freshman and sophomore work will be given in the College of Liberal Arts.

The curriculum in accounting under the new organization will contain the following courses: Elements of Accounting (6 cr.) required of all students in commerce; Accounting Principles (2 cr.); Theory and Practice of Accounting (2 cr.); Cost Accounting (2 cr.); Auditing (2 cr.); Accounting Systems (2 cr.); Governmental Accounting (2 cr.); Seminar in Accounting (2 cr.)

The twelfth annual convention of the American Association of University Instructors in Accounting will be held December 28-29 in Washington, D. C., with headquarters at the Hotel Raleigh. An attractive program has been arranged and a large attendance is expected.





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